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The New England Surgical Society

THE TREATMENT OF CARCINOMA OF THE PROSTATE

BY JOHN H. CUNNINGHAM, M.D., BOSTON.

THE object of this communication is to touch briefly upon the clinical course of carcinoma originating in the prostate; to refer to certain features in connection with the diagnosis and what may be done to relieve the condition.

The disease is probably more common than supposed, and the statistics of recent years show that somewhat more than 20 per cent. of prostatic obstructions are due to this cause.

In 1908 Dr. F. S. Watson and myself (Watson & Cunningham) published the operative results by all methods in carcinoma of the prostate up to that time, and there was but one patient who had lived more than four years. The average length of life in the Mayo series recently recorded by Bumpus (*Surg., Gyn. and Obstet.*, Jan., 1921) was 3½ years from the date of the first symptoms. Certainly not a brilliant record!

Since radium therapy has been added to the treatment of carcinoma in general it has, in the hands of a few, been extensively employed in connection with the treatment of carcinoma of the prostate, which has improved the situation somewhat.

Carcinoma of the prostate possesses the same general problem as carcinoma elsewhere, together with certain special features dependent upon its location; producing symptoms of prostatic obstruction.

Considering the subject purely from the clinical aspect, there are two important features, differing entirely from one another, which have a most important bearing upon the symptomatology and course of the disease. The one, metastases, is in most respects the same with carcinoma of the prostate as with carcinoma elsewhere, differing only in certain features because of their location deep in the pelvis and abdomen where they may develop and not be evident until well advanced. The other feature is the development of the growth in the prostate, producing prostatic obstruction with a resulting residual urine and back pressure in the kidneys, with or without urinary infection; or in other words, the same sequence of events as occurs with benign prostatic obstruction.

The most unfortunate feature in connection with carcinoma of the prostate is the fact that the primary focus in the gland may develop so slowly as not to cause symptoms of prostatic obstruction before widespread metastases occur. In fact, the majority of patients seeking medical aid for the symptoms of prostatism due to carcinoma of the prostate generally show well-established metastases at that time, which make the surgical problem, in most instances, a purely palliative measure.

There is also a group of patients with carcinoma of the prostate who, for the same reason of slow development of the primary focus, are relatively free from any symptoms of prostatism, but because of symptoms dependent upon the metastases naturally seek relief in other branches of medicine than urology. Metastases from a focus of carcinoma in the prostate not infrequently occur in the bones, particularly in the spine, producing cord symptoms and neuralgic and rheumatic pains dependent upon nerve pressure in various parts of the body, and particularly from pressure within the pelvis, producing symptoms of sciatica, are most common, and carcinoma of the prostate, as an explanation of such symptoms in adult males, should always be considered even in the absence of any symptoms of prostatic obstruction.

The difficulty in dealing successfully with carcinoma of the prostate surgically is, therefore, dependent chiefly upon the fact of the relatively slow development of the local focus and the relatively rapid dissemination of metastases, so that by the time the patient develops the symptoms of prostatic obstruction a widespread metastasis has already taken place. This remarkable disproportion between the secondary manifestations of the condition and the primary focus leads to only a late recognition of the disease in most instances.

The benefits to be derived from surgery in carcinoma of the prostate are, briefly speaking, the relief of prostatic obstruction whereby the bladder is permitted to empty itself of its residual urine and the kidneys thus relieved of back pressure. Without this relief death is hastened by renal impairment, and it is my belief that more patients with unrelieved carcinoma of the prostate die from uremia than from the disease *per se*, and it is the symptoms dependent upon the condition in the urinary tract that contribute largely to the individual's suffering.

From the diagnostic standpoint there are certain subjective symptoms and objective findings which, in many instances, may differentiate carcinoma of the prostate from benign hypertrophy. Without entering upon a discussion of the pathology of the disease an explanation of the subjective symptoms is to be found in the fact that the primary focus in the prostate produces early metastases in the pelvic nodes, resulting in sciatic nerve pressure and giving the usual symptoms of sciatica. This disturbance is a common one, and, in fact, not infrequently the most pronounced symptoms regarding which the patient complains. With such pain radiating to one or both sciatic regions, there is often an associated sacral and groin pain, all of which subjective symptoms should excite suspicion of malignant disease of the prostate, with pelvic metastases.

Bumpus (*ibid.*), recording the statistical data at the Mayo Clinic, notes that the first symp-

toms in seventy-nine patients with clinically demonstrable metastases was pain in 34%, while in 283 patients without clinically demonstrable metastases pain was the first symptom in but 12.01%; which strongly suggests that when pain of the character already referred to is a prominent symptom, pronounced metastases have, in all likelihood, already occurred.

Objectively, the sense of marked induration, loss of resiliency and irregular hard areas within the gland, as noted by rectal palpation, and especially if the induration extends upward onto the posterior surface of the bladder toward the seminal vesicles, in a prostate little or much enlarged, is characteristic of carcinoma of the gland, and is in contrast to the smooth, resilient, more or less rounded topography of benign hypertrophy. The only condition of the prostate with which carcinoma in the gland can be confused, is the small fibrous prostate or when there exists localized areas of greater density due to chronic inflammation, and in most instances the train of subjective symptoms already alluded to are wanting.

In the preoperative examination as well as in the histology, there are two types of carcinoma of the prostate. One, the most common, is the gland enlarged in varying degree with irregularities of almost stony hardness in the early stages of the disease, or after the whole gland has become more or less involved in the infiltration, a general enlarged hard mass extending laterally toward the pelvic bones, and upward in the direction of the seminal vesicles, in which direction it has a tendency to spread. This is the type of carcinoma of the prostate which gives the greatest degree of urinary symptoms, because of obstruction. The other type, the most malignant, producing rapid and extensive metastases, shows but relatively little enlargement of the gland by rectal palpation, and the outline is uniform rather than irregular, but there remains the sense of firmness or even hardness. This type of carcinoma of the prostate is rapidly infiltrating in character, having little tendency toward localization. It produces a condition of the gland by rectal palpation which is most likely to be passed unrecognized, not only because of the lesser degree of urinary obstruction, but because it may readily be mistaken for an obstructing gland, providing obstruction exists, of the small, fibrous type or the changes produced by chronic inflammation.

It can be readily appreciated that those particularly alert in appreciating the differentiation referred to between a malignant and benign prostate will have a smaller degree of error in the recognition of the condition before operation; yet there remains a percentage of errors in the experience of the most expert, and those who operate much upon the prostate encounter, during the operation, the difficulty of enucleation or gross changes in the removed

gland, which leads to a suspicion of the true condition. Such suspicion requires an immediate frozen section if possible, and if the gland is carcinomatous or any suspicion exists regarding this point, radium should be implanted in the prostatic region, as will be referred to later. There remains, further, a certain percentage of prostates which are carcinomatous, which will pass at operation as benign, the true condition only being realized by the pathological report. Too much emphasis cannot be placed upon the importance of the pathological examination of all prostates removed for this reason, and because a recognition of the condition calls for the postoperative treatment with radium, if we are to do everything to prevent a local recurrence of the disease.

If, during the preoperative examination, a condition in the gland is discovered which excites suspicion of carcinoma, a complete x-ray examination of the whole skeleton should be made, as bone metastases, both osteoplastic and osteoclastic, are not uncommon. Their presence may be entirely lacking symptomatically, for as Recklinghausen (*F. von. Die fibroese oder deformierende Ostitis, die Osteomalacie und die Osteoplastische Carcinome, in ihren gegenseitigen Beziehungen. Festschr., Virchow, Berlin, 1891, 1-89*), has pointed out, the metastatic process in bone begins in the medullary portion. This evidence of bone metastasis I have found to be not an uncommon accompaniment to the disease, both ante mortem and post mortem, and which condition I will illustrate later by slides. Almost any bone may be involved, as shown by Carlier and Davrinche (*Les metastases osseuses dans le cancer de la prostate. Echo med. du Nord, 1903, VII, 313-322*), the vertebrae, pelvis, ribs and femur being the most common. Bumpus (*ibid.*), recording the Mayo Clinic cases, shows in 135 patients x-rayed: metastases in the pelvis bones, 37.5%; spine, 35.8%; femur, 31.2%, and ribs, 6.9%. While the presence of metastases may not be demonstrated by x-ray in the abdominal nodes and organs, their presence in the lungs is so portrayed not uncommonly, which fact is another argument for a complete roentgenological examination prior to operation; for with a general metastasis without urinary symptoms, the patient may be better treated palliatively, or if operated upon because of urinary obstruction, for the purpose of prognosis and better understanding of the remote symptoms, which may develop.

The local urinary disturbances produced by carcinoma of the prostate are briefly those of benign prostatic obstruction. There is an impression that hematuria is more frequently associated with carcinoma of the prostate than with benign hypertrophy; with which I differ, for in my experience hematuria is far more common with a benign than with a malignant

condition of the gland. The features of urinalysis are common to both conditions, but renal obstruction, with renal dilatation and pyelonephrosis, has occurred in a higher percentage with carcinoma than with benign hypertrophy, an explanation of which is to be found, I believe, dependent upon the pressure of involved pelvic nodes upon the ureter, which condition I have noted post mortem in several instances.

The usual preoperative study, cystoscopy, renal function tests and blood chemistry, determine the renal condition, and should be employed with prostatic obstruction due to carcinoma, as in benign hypertrophy, for by such means information of the patient's condition, both local and general, is obtained. In this connection the phenolsulphonaphthalein test should be employed both intravenously and intramuscularly, for by the variation in the result of the test by both methods, important data may be had in estimating, in some measure at least, the patient's general condition, and together with other information of the patient's physical status, determine whether the patient should be treated palliatively or by radical means.

It would be an absolute misstatement of fact to assert any views other than considering carcinoma of the prostate as an inevitably fatal disease, yet it is likewise true that much may be accomplished in relieving the distress due to urinary obstruction both by palliative as well as by radical local treatment. If one contrasts the suffering due to the urinary obstruction with that dependent upon the metastases, there is no question that the individual, freed of his urinary difficulties and ill-being dependent upon renal impairment, lives the remainder of his life in relative comfort, and it is in that respect that any procedure that tends to ameliorate their suffering, even though it offer but little chance of permanent cure, should be employed.

I am convinced from my own, as well as the experience of others, that much may be accomplished along these lines: especially by the combination of surgery with radium therapy by choice, when the individual's condition permits, or by palliative measures by radium alone, or combined with bladder drainage when radical surgery is out of the question.

It is generally admitted that the suffering dependent upon urinary retention and the train of general symptoms dependent upon renal retention and infection, influencing the general condition, must be relieved. Prior to the advent of radium therapy prostatic carcinoma was treated surgically, with two ends in view. One method was palliative and the other an attempt at radical cure. The palliative method consisted of regular catheterization when possible, and permanent suprapubic drainage when necessary. An attempt was made to remove the gland either suprapubically or perineally by enucleation, curetting, or cauterization, to re-

lieve obstruction. The radical method first advocated in 1882 by Leisrink (*Leisrink, Arch. f. Klin. Chir.*, 1882. Berlin, xxviii, 578) was to remove the gland with its sheath and unite the divided ends of the vesical neck with the membranous urethra by suture. A somewhat similar procedure was carried out by Fuller in 1898 (*Fuller, Journal of Cutaneous & G.-U. Diseases*, 1898, p. 581), and in 1904 Young (*Johns Hopkins Bulletin*, Oct. 1905) modified the Leisrink operation to include the seminal vesicles in the operation.

Both the palliative and radical methods relieved bladder retention and lessened, in consequence, the suffering, dependent upon it; but the radical attempts did little more, for then, as now, the disease cannot be expected to be recognized prior to the development of metastases, so that any removal of the local growth did not accomplish a cure. It is today generally admitted that the radical operation, as a curative means, is futile because, even with a complete removal of the local disease, the metastasis remains.

During the past five years radium has been quite extensively employed in certain centers of this country in various ways for the treatment of the disease under consideration. As yet no one method has been generally adopted. It is fair only to say that the use of radium by all the methods possesses merit, and favorable local results are obtained when employed independently or together with surgery. After personally observing from time to time the work of others who have concentrated upon this form of treatment, and from a lesser personal experience, I am convinced that it has much value, chiefly in preventing local recurrences if employed before and at the time of operation, and subsequently employed following the operative convalescence. Of this I have no question, and I believe that the day is not far distant when radium will be quite generally a part of the equipment on the instrument table when a prostatectomy is undertaken by those frequently performing the operation; for I feel sure that one doing many prostatectomies will admit that they are occasionally confronted with a carcinomatous gland which they considered to be benign prior to operation, and because the result, so far as local recurrence is concerned, is generally admitted to be better if radium is implanted in the prostatic region following the removal of all the gland tissue that can be removed surgically.

At a recent meeting of the American Association of Genito-Urinary Surgeons (*Trans. Am. Assoc. of G.-U. Surg.*, May, 1921) a symposium on the treatment of carcinoma of the prostate brought out many viewpoints regarding the manner of handling the malady. In general the opinion could be classified into two groups, some contending that surgical procedures dealing with the malignant gland tended

to favor metastases by opening channels for dissemination, and advocated treating the growth by radium alone, producing bladder drainage, if necessary, suprapubically. Others believe in removing as much of the malignant gland as possible, some by the suprapubic and some by the perineal route, with the implantation of radium in the prostate area, and subsequently treating the patient by local radium applications. Favorable local results were recorded by both methods, but neither group presented evidence upon which could be formulated a general basis of treatment for all patients.

Reviewing my own cases prior to the employment of radium in connection with the treatment, it is found that the patient simply given permanent suprapubic drainage, had a less operative mortality and lives slightly longer, on the average, than those from whom the malignant gland was removed. The former group has the inconvenience of a permanent suprapubic tube, and the latter were symptomatically relieved, but often had a local recurrence; and some, for this reason, required subsequently a permanent suprapubic drainage. It is a noteworthy fact, however, that there were a surprising number entirely free from the symptoms of prostatic obstruction by even an incomplete removal of the malignant gland, and were left to die in relative comfort from their metastases, or intercurrent diseases, which are the inevitable result in any event, but without a disturbing local recurrence. Since employing radium prior to and at the time of operation and carrying on subsequent radium treatment following operation, local recurrences have not been a disturbing factor. Moreover, in the treatment by radium of local recurrences in patients who did not have radiation at the time of operation, the radium has, I believe, in many instances taken care of the recurrence so that a permanent suprapubic drainage has been averted. Some of the patients were operated upon by other surgeons and only the recurrences have been observed by me; yet I am convinced that these patients were on the way to a permanent suprapubic drainage, except for the benefits received from the local radium treatment.

Those who have had the greatest experience in connection with radium treatment without surgery are Barringer, at the Memorial Hospital in New York, Young of Baltimore, and the Mayo Clinic. One should not receive the idea that the policy of treatment at these clinics is adverse to operation, for they are not; but they have had an extensive experience in connection with treating the condition by radium without operation. There is a group of patients having obviously a carcinoma of the prostate who have been subjected to treatment without operative interference chiefly for the reason that they either have relatively slight symp-

toms of prostatic obstruction or because metastases are so advanced that operation other than permanent suprapubic drainage would be fatal.

Personally, I have come to classify patients with carcinoma of the prostate into two broad groups. One, in whom an attempt may be made to relieve the prostatic obstruction because of much residual urine, and eradicate the disease locally by removing as much of the gland as possible, even including the seminal vesicles and prostatic sheath in certain instances, and leaving radium in the prostatic area for from 500 to 1000 millicurie hours, according to how much of the growth is left at the time of operation, and subsequently, about three weeks later, giving daily radium treatments through the rectum, urethra, and bladder for a period of about thirty days, giving 100 millicurie hours at each treatment.

The operation, if undertaken, I believe, is preferably done through the perineum, essentially according to the technique of Proust (*Comptes rendus de l'Assoc. Française d'Urologie*, 1901.) The patients falling into this class are those with symptoms dependent upon prostatic obstruction and those whose general condition will permit of such surgical intervention as proven by the usual method of pre-operative study generally employed in prostatic patients.

The other class includes patients with disturbing symptoms of prostatic obstruction and whose general condition is not up to the required standard for the radical operation. They may be subjected, in some instances, to the so-called "Punch" operation, with subsequent radium treatment, or subjected to a suprapubic drainage and treated with radium by introducing needles containing radium into the gland through the suprapubic opening, at the time that it is established, and leaving the radium needles implanted in the gland for from 500 to 1000 millicurie hours, and subsequently treating the malignant gland by radium therapy through the rectum, urethra and bladder, as previously mentioned.

A few months ago I had the opportunity of operating upon a patient who originally had marked prostatic obstruction from a malignant gland, which gland was removed by Dr. Hugh Young in January, 1921, with radium left in the prostatic region, and who received subsequently radium treatment as previously outlined. In June, 1921, he came under my care with a deep urethral stricture and large, foul, residual urine. Through a perineal incision I was able to investigate the prostatic area and remove tissue from this region. There was no gross evidence of carcinoma and the histology of the removed tissue showed it to be fibrous tissue only. I believe that in this instance the local malignant disease had been eradicated.

While this is the only patient that has permitted of an investigation of this sort, there are others who are free from urinary obstruction following the procedure referred to, and by all non-operative methods of investigation are locally free from the disease.

The other class, which is a large group, includes patients with few distressing symptoms of prostatic obstruction and those with recurrence of the disease locally, following operation. This group is subjected to radium treatment alone, or combined with regular catheterization and irrigation, if necessary, to relieve a residual urine or bladder infection.

The radium treatment which I have adopted in this group is a combination of the methods employed by Barringer (*Trans. Amer. Assoc. Gen.-Urin. Surg.*, June, 1921) and by Young (*Jr. Urology*, Vol. 1, No. 6, Dec., 1917).

The Barringer method is the introduction of metal needles containing radium or radium emanations, fixed on a shaft not unlike a small trochar, into the gland through the perineum. For this purpose four 12½ milligram needles may be employed at the same time, placing them in different portions of the gland and also into the seminal vesicles, if desired, guiding their introduction with a finger in the rectum while they are being introduced into the desired areas through the perineum. The needles, having been placed, are left from 300 to 1000 millicurie hours. This procedure requires that the patient remain in bed, there is usually little if any reaction, but urinary retention requiring not more than a few catheterizations has occurred occasionally.

While Barringer is content, through a large experience, to leave these patients, without further radium treatment, for several weeks, when they are again needed, if it seems advisable, I have preferred to supplement the needling by a course of treatment by the method employed by Young, about three weeks after the needling. The treatments consist in making daily applications of radium for 100 millicurie hours by means of a special instrument introduced into the prostatic region through the rectum, urethra, and transvesically; in the ratio of usually three rectal to two urethral to one bladder application, varying the method of application according to circumstances, and never applying the radium to the same area on successive days because the susceptibility of the mucous membrane of these different avenues of application is subject to considerable individual variation, and irritation from the radium may develop if care is not taken in this respect. At the end of this course of treatment the gland, and if advisable the seminal vesicles, are again needled by the Barringer method, and the course of treatment for the time being is ended.

These patients should be examined in about a month, and according to the changes in the

condition depends the decision as to further treatment. During this interval catheterization and bladder lavage may be carried out if necessary.

The results have proven conclusively, to my mind at least, that radium employed by the Barringer or Young method has a striking beneficial result, as I have reason to know from observing their work from time to time prior to employing it myself. My decision to combine the two methods was not from failure on their part, but rather to employ every means of attacking the disease. Recently Young has adopted the needling method to supplement his form of treatment for the same reason, applying the needles, as a rule, at the end of the course of rectal, urethral, and bladder applications.

The course of treatment as outlined is essentially that employed at the Mayo Clinic also, and in a recent personal investigation of their results, I find that they classify them briefly into (1) those relieved of all symptoms, (2) the growth shrinks, but some urinary obstruction remains, (3) in some there is no change, and (4) that there are some remarkable results and apparently local cures. In a recent personal investigation of the results of Young's Clinic at the Brady Urological Institute, I find that they classify their results as follows: (1) actual beneficial results, which means diminution in size and softening of the carcinomatous gland with relief of retention in most instances; (2) symptomatically improved, meaning diminution in frequency of urination in about 60 per cent., relief of local pain in over 70 per cent., the cessation of bleeding in all cases where it was a factor; and about five per cent. of patients have gone over four years without return of local symptoms, and are apparently local cures.

My own experience, by no means so extensive, substantiates in substance these results, with some reservations. There have been several patients with local recurrence following operation who, without employing radium at the time of operation, have, through treatment by radium as outlined, shown such improvement in the size of the growth and obstructive symptoms, that, in my opinion, they have been relieved of the necessity of producing a permanent suprapubic drainage. It should be mentioned that the relief of symptoms and diminution in the size of the gland must not be expected to take place during the course of radium treatment, and several weeks must pass before favorable results can be expected; and even then all that may be desired and hoped for may not take place, with the result that another course of treatment may have to be instituted. There have been some patients in whom the gland has softened and diminished much in size, yet some retention remains and all symptoms have not disappeared.

On the whole, however, the patients are symptomatically and locally improved, and there are some with apparently local cures.

The mental attitude of the patient with carcinoma is a feature familiar to us all, and one has been much impressed with the new hope, false perhaps, that has come through the unqualified popular expressions as to the wonders of radium, which, after all, is no small individual matter when one has been led to believe that nothing further can be done after the operation has failed. It is fortunate that we are in possession of such data as to be able to give such patients some hope founded on fact.

On the other hand, the history of the subject shows conclusively that carcinoma of the prostate is an inevitably fatal disease occurring from three general causes: local urinary obstruction with renal impairment and infection; metastases; and inviting intercurrent diseases from lowered general resistance. When all is said and done, all we can accomplish in this disease is to relieve the local condition either by operation, combined with radium therapy in certain instances, or by radium therapy alone, which, however, is no small accomplishment when such procedure tends to ameliorate suffering even though it offers a very small chance of permanent cure.

DISCUSSION OF DR. CUNNINGHAM'S PAPER ON CANCER OF THE PROSTATE.

DR. QUINBY: I am sure the Society is deeply indebted to Dr. Cunningham for his excellent résumé of a subject which is still *sub judice* in a great many respects.

Two or three points stand out as important. In the first place, I wish to emphasize the great frequency of cancer of the prostate. My own experience has been somewhat as follows: while in Baltimore with Dr. Young, analysis showed that 20% of the cases with prostate obstruction coming to his clinic proved to be malignant. Although this was the incidence of cancer of the prostate in that clinic, it seemed, because it was a special clinic and because of Dr. Young's reputation, that these figures were probably too high, and did not represent a fair cross section of the condition throughout the country. In the beginning of my experience at the Brigham Hospital my figures were only about half as large. In other words, only one case out of ten proved to be malignant. But later on I have found the percentage to increase, so that now we find that 15-18% of the cases of prostate obstruction are malignant.

I only mentioned these facts to call to your attention the extreme importance of any method which will palliate the deplorable symptoms of a disease so frequent. With regard to what methods are to be used in palliation, I cannot add anything to the very excellent summary which Dr. Cunningham has given you. I think with him that, in spite of the very attractive lantern slides which he has shown, attempts to remove the prostate by radical operation are not justified. I feel that the only time when a prostate carcinoma can be radically removed is when one finds, in the course of an operation for benign growth, so small an area of carcinoma as to be demonstrated only by the pathologist. We have in our clinic two or three patients

apparently entirely cured, in whom the diagnosis of carcinoma of the prostate was undoubted, but in whom we found such a small area of cancer that it could be shown only by the microscope. These are the only cases that can be surely cured, I believe. The others, because of their distressing symptoms, must be treated by palliation, and one of the most prominent and successful methods today is by radium, as Dr. Cunningham has outlined.

DR. F. R. HAGNER, Washington, D. C.:—*Mr. President and Gentlemen*—It is certainly a great pleasure to be present at the meeting of the New England Surgical Society. I have enjoyed Dr. Cunningham's timely paper. There isn't much I can add to it as he has gone into the subject very thoroughly and has given a fair presentation of it. He did not touch especially on the early diagnosis as most of the patients we see with cancer of the prostate are late cases and we should see the early type of the disease. The following symptom occurring in men between 45 and 55 years of age should arouse suspicion of malignancy—namely urinating frequently without obstruction, and a most careful examination of the patient presenting this symptom should be made.

As regards metastases in these cases—it is only twelve years ago that Dr. George Bloomer read his paper in Washington and reported forty-five cases of bone carcinoma following carcinoma of the prostate, so that this work has practically all been done in the last four or five years, and there are now hundreds of such cases on record.

We have all seen cases with carcinoma of the prostate live two, three, four and five years in comparative comfort before we had radium. But I am sure that radium prolongs life and surely adds much to the comfort of one suffering from this distressing disease. There are two types which he spoke of—the large adenomatous type of the disease and the small fibrous type. It is interesting to note that statistics prove that the small prostate is the one that has the more frequent bone metastases. That may possibly be due to the smaller prostate being present for a longer time without symptoms.

I have had experience with radium for about six or seven years. Three and a half years with my own and the rest of the time the cases were treated by Dr. Kelley of Baltimore. My experience has been a little different from Dr. Cunningham's. I have not seen a single case where the growth in the prostate has been entirely eradicated by radium. Many of the tumors become smaller in size, less hard and indurated. The subjective symptoms are, in many cases, most wonderfully relieved. As to the relief of the obstruction, radium has not relieved this symptom but most happy results have followed the surgical removal of the obstruction followed by the use of radium.

I feel that it is most important that in every prostate removed, sections should be taken, not in one place but in different parts of the gland, as it not infrequently happens that a supposed non-malignant prostate proves on pathological examination to be carcinomatous. As Dr. Quinby said, the cases in which we get good results are the very early cases in which we are only able to make a diagnosis by sections of the gland; in this type there is a small nodule which is carcinomatous and we fortunately remove it at an early stage.

I feel it comes down to this: That carcinoma of the prostate is one of the most difficult forms of carcinoma we have to deal with, and anything we can do to enhance the comfort of these patients, or that serves to prolong their lives, should be readily used by everyone treating this disease.

DR. ARTHUR L. CHUTE, Boston: There are a few remarks I would like to make concerning Dr. Cun-

ningham's paper. I will admit that the outlook in cancer of the prostate is discouraging but I think it is not as dark as the gentleman would indicate. It seems to me that surgery can do a good deal for these people, mostly in the way of palliation, I will admit, but now and then we get a clinical cure. Dr. Hinger spoke of the fact that the malignant cases which remained well after operation were the cases that we came upon accidentally. This is not always the case. I have a patient that I operated on ten years ago. Dr. Arthur Cabot agreed that clinically it was carcinoma. I did a perineal prostatectomy, taking out all the gland tissue I could; this tissue was macroscopically and microscopically carcinoma; the man was without any evidence of disease last winter, ten years after operation. I have another similar case operated on at about the same time. I have not seen him but he was reported as well by a friend, within a few months. Radium was not used in either case.

Dr. Cunningham spoke of Dr. Barringer's ways of using radium before operation in carcinoma of the prostate by inserting needles through the perineum and applying the radium through the urethra by means of applicators. I doubt the wisdom of using radium before operation for several reasons: first, many of these people with cancer of the prostate come to us with a retention of greater or lesser amount and the immediate operative removal of as much of the obstructing malignant prostate as we can get, relieves this element. It is my belief that the pyelo-nephritis secondary to retention plays a very important part in the course that these cases run both as regards the length of life and their comfort. Furthermore, it seems to me perfectly self-evident that as radium exerts its action only a relatively small distance, the removal of the bulk of the malignant tissue by operation, and the inserting of the radium in the sides of the operative cavity, allows more action to be exerted on the peripheral part of the mass, the impossible part to remove by operation. There is another reason for operation first and the use of radium later, that is, the devitalizing action that radium seems to exert on the surroundings intravesically and intrarectally, before he was subjected to perineal operation. He had no residual at the time I saw him before he began his radium treatment; at the end of his course of radium he had a sufficient residual to make a perineal operation seem necessary to his surgeon. This was done and the man, who is now practically dying, returned with a recto-urethro-perineal fistula which it has been impossible to close. I believe this was due, not to a poor operative technique, but to the fact that the use of radium had robbed the tissues of their ability to heal rapidly. This devitalizing action is somewhat slow in taking place, estimated to be at its height about six weeks after the use of radium. Now if one applies radium following the perineal operation the operative healing has taken place before this devitalizing action is evident. It is my belief that we must persist in our efforts to help these patients, that while as yet we do not accomplish much in the way of "cure" we do accomplish a good deal in the way of amelioration.

SOME FIGURES ON CAESAREAN SECTION.

BY JOHN M. BLENNE, M.D., SPRINGFIELD, MASS.

In the *Journal of the American Medical Association* for February 24, 1917, a writer on Caesarean Section gives the mortality as over 50% in several good-sized cities near Boston,

and says that he has no doubt that similar figures obtain in other parts of the country. He further says, "I believe that if we could only collect the statistics from the private hospitals of our larger cities we should be compelled to admit that there is a surprisingly high maternal mortality attendant on this operation."

Being somewhat interested in the subject of Caesarean Section, and not believing that the mortality in Springfield was "surprisingly high," I endeavored to ascertain what the actual statistics of the operation were in our community and what the pregnant women might expect from the procedure in the hands of the local operators.

The writer before mentioned, states that he has no actual figures upon which to base his assertions; and I, also, have been unable to find figures covering any geographical unit. Most of the published figures are drawn from the clinic of one man, or from the records of hospitals dealing exclusively with maternity cases. Some of the writers make even a further classification by separating their private cases from those done on hospital service.

In the present paper I have taken a period of years extending from January 1, 1909, to January 1, 1921. The year 1909 was taken as a starting point because it marked the opening of a hospital given over exclusively to obstetrical work. During the period of 12½ years there have been in operation five hospitals in which Caesarean Sections have been performed. I have made very careful inquiry and have not been able to learn of any case done outside of a hospital; therefore these figures must very nearly represent every Caesarean Section done in Springfield during the given period.

Four of the hospitals mentioned are open institutions in which any doctor of good standing may operate, and the fifth hospital was open during a part of our period. The operations were done by twenty-nine different men representing varied degrees of surgical training and experience, and including some so-called "occasional operators." Many of the histories of the cases, particularly in the first years of the period, are very meager and are wanting in certain important data so that accurate deductions cannot be made along lines which would be very interesting.

In the twelve and one-half years, 217 Caesarean Sections were performed in the five hospitals. Two of these were done by surgeons from a distance, so have been excluded from our figures, leaving a series of 215 cases. During this same period there have been, in Springfield, 39,069 deliveries, making an incident of Caesarean Section of one in one hundred and eighty cases. In 20,000 cases at the Sloan Maternity the incident was one in one hundred and thirty-three.

The maternal mortality in our series of 215

cases was 11 per cent., which on first thought might seem rather high, and yet it compares favorably with Davis' figures from the New York Lying-In Hospital, which give a maternal mortality of 10.7/10 per cent. in a series of 571 cases. In our series the cases were not selected, and in fact many of them were contra-indicated if one holds strictly to the idea that Caesarean Section should not be performed on a woman who has had frequent vaginal examinations or attempts at delivery. I am not defending some of the procedures shown in these figures, only stating the facts, but one must remember that we often operate under very unfavorable circumstances and in the presence of conditions not of our own choosing. It is extremely easy to lay down hard and fast rules of operative procedure, and still more easy to criticize the work of others, but in making such criticism one is often entirely ignorant of the conditions and circumstances under which the surgeon was forced to make his decision. In this series of cases the maternal mortality varies widely in the different hospitals. In one hospital there were 39 sections, and in another 41, which gives a good basis for comparison. The maternal mortality in the first hospital was 20.5/10%, and in the second hospital 4.8/10%. The foetal mortality in the first was 20.5/10%, and in the second 17%. The mortality in the other hospitals varied between these two extremes. Later in the paper it will also be seen that one might question the indications for operation in many of these cases, as it is perfectly evident that the section was done merely as a means of emptying the uterus. Furthermore, over one-quarter of the operations were done for toxemia, an indication strongly questioned by many operators. Of our 215 cases the charts from one hospital were not available, so that 15 cases are dropped from our series in further analyzing our figures. In the 200 cases remaining the maternal mortality remained at 11%, and the foetal mortality was 20.5/10%.

In the 200 cases, Caesarean Section was performed for the following conditions:

Contracted or deformed pelvis	64
Toxemia	55
Placenta previa	39
Uterine inertia	22
Breech presentation	4
Cervical scar tissue	4
Previous Caesarean	4
Aged primipara	3
Transverse presentation	2
Picornate uterus	2
Face presentation	1
Brow presentation	1
Hydrocephalus	1

The charts in our series are so incomplete that it is impossible to work out the cause of death, but the following figures will give the deaths according to the indications for which section was performed.

MATERNAL	
Toxemia	13
Contracted or deformed pelvis	3
Inertia	4
Bicornate uterus	1
Aged primipara	1
FOETAL	
Toxemia	14
Placenta previa	10
Contracted or deformed pelvis	9
Inertia	3
Cervical scar tissue	2
Previous Caesarean	1
Bicornate uterus	1
Hydrocephalus	1

In analyzing our figures on the toxemias of pregnancy, I am somewhat at a loss as to procedure. Most of the textbooks devote at least a chapter to the toxemias without giving a definite classification, and stating that they may, if severe enough, lead to eclamptic convulsions. Eclampsia is given a chapter by itself, and in order to be classified as such, convulsions must be present. I am not able to determine where the toxemia ends and the eclampsia begins, unless it is with the first convulsion. Given two women with exactly the same symptoms, one will have convulsions and one will not. Are we dealing with two different diseases? In our series I have classified as toxemias all the cases having marked albuminuria, gastric disturbances, headache, etc., of severe enough nature to warrant a diagnosis of threatened eclampsia, as well as the cases in which convulsions were present. The question which arises in my mind is whether or not I am justified in comparing our figures with those published regarding eclampsia. Many writers discuss eclampsia but do not state whether or not convulsions were present.

In our series there were 53 cases of severe toxemia with a maternal mortality of 24 5/10%, and a foetal mortality of 21 8/10%. The largest number of deaths, both for mother and child, occurred in this class; over one-half of the maternal mortality having occurred in the toxic cases. If we could exclude them from our series the maternal mortality would drop to 61/10%. I know that many operators do not consider eclampsia as an indication for Caesarean Section unless possibly under a very few exceptional conditions.

If I may be allowed to consider our toxemias as eclamptic cases the mortality, although high, does not compare too unfavorably with other methods of delivery. De Lee gives the maternal mortality in eclampsia as from 20 to 45%, and the foetal from 30 to 60%.

Davis, in analyzing 571 cases from the New York Lying-In Hospital, gives a maternal mortality in eclampsia of 37% and a foetal of 30%, while Cragin in 20,000 cases from the Sloan Maternity, gives the maternal mortality in eclampsia as 28 3/10%, and the foetal as 60 1/10%. In the Sloan Maternity the delivery was accomplished by dilatation with the

elastic bag, followed by delivery. Neither of these writers state whether or not convulsions were present in their cases.

In discussing placenta previa I am again at a disadvantage, for it is impossible to tell from the histories in our series whether we are dealing, in a particular case, with central or marginal placenta previa. Furthermore, it is possible that in some of our so-called previa cases we were dealing with placental separation rather than faulty attachment. I have of necessity grouped all these cases under the heading "Placenta Previa." In this group there were 39 cases treated without the loss of a single mother, and with a foetal mortality of 25 6/10%. This is by far a better showing than is found in any statistics that have come to my notice.

I have not discussed the indications for Caesarean Section, but there are three classes of cases in our series concerning which there is much to be said both for and against section. I refer to cases of breech presentation, eclampsia, and placenta previa. I have some convictions concerning them, but on some points I confess that I am still very uncertain. Perhaps the discussion may help to clarify matters somewhat. I have not mentioned the time-honored debate over the point as to whether the section should be performed by the obstetrician or the surgeon. In our community there is no debate, as there is no one practising obstetrics exclusively. The cases are handled by general practitioners. This is not a criticism, for many of these men are clever obstetricians with a wide experience. Few, if any of them, attempt Caesarean Section, and it is to the surgeon that these cases fall. Believing that a similar condition of affairs exists in many of our New England towns and cities, leads me to present an obstetrical subject before a surgical meeting. With us, Caesarean Section is a surgical problem, and as such I present to you these incomplete figures which, to me, show not a "surprisingly high mortality," but an astonishingly low one.

DISCUSSION OF DR. BIRNIE'S PAPER ON CAESAREAN SECTION.

DR. WALTER G. PRIFFEN, Salem: I inferred from the synopsis of the paper that comparative statistics would be acceptable, so I looked up the statistics of the Salem Hospital for the last ten years and have found that there have been seventy-seven cases of caesarean section, with six deaths—a mortality of about seven per cent. I had no time to look up the indications for operation except in the case of the deaths. Three of the six deaths were in cases where the indication for operation was placenta praevia, two for eclampsia. Only one death occurred where the operation was done for contracted pelvis. The woman had been subjected to excessive labor before entering the hospital and died of general peritonitis.

Sixteen cases have been operated on by me, with

one death. This was a primipara with placenta praevia, undilated, with excessive hemorrhage.

These figures seem to show that in a small community at least the risk of operation is greater by far in placenta praevia and in eclampsia; but of course both of these conditions might have led to the deaths anyway.

I think these figures, however, do not represent all the cases of caesarean section done in Salem in the ten years, for in the first half of the period, before we had adequate private ward accommodations, many were done at home. This series of cases was operated upon by six or seven different surgeons, using approximately the same technique.

DR. SAMUEL W. GODDARD, Brockton: Not being a real obstetrician, I hesitate to discuss this paper, but I am interested in it from the point of view from which it has been presented. I have had occasion to do a few caesarean operations in connection with our private clinic in Brockton for a period of thirteen years during which I have been connected with the Goddard Hospital; and in that time there have been 2,302 obstetric cases, of which 59 were for caesarean section, making a total of 2.4 per cent. of the hospital cases which have had caesarean section. That figure I think is somewhat misleading because we don't know what percentage is sent in from the outside by men who send difficult cases only and not normal cases. Of that series there were two maternal deaths, and the mortality for the babies was nil. Of these, twenty-three were for contracted pelvis, twelve for disproportion, thirteen for repeated caesarean, four for primiparous breach, two for pelvic tumor, two for placenta praevia one for eclampsia, one for transverse presentation with contraction, and one for decompensated heart.

The death in the first one was from hemorrhage and in the other from eclampsia with peritonitis. The series of cases comprising those I have tabulated under contracted pelvis require explanation. Those cases showed by pelvimetry a definite contraction, but I think it is fair to say that many of them should be included in the cases of disproportion.

There is just one point I would like to call attention to, and that is that I feel that more of these borderline cases should be subjected to a test of labor. I don't think that the size of the head or the size of the pelvis or both should necessarily be the deciding factor. I think there are many contingencies and coincidences in labor which we don't know a whole lot about or at least we fail to recognize, and many of these cases will not be subjected to caesarean if we recognize the fact; and I believe it will not materially increase the risk if later on caesarean should be decided upon. Our cases have been done, eight by my associate, Dr. Leavitt, and the rest by myself, and it is fair to say that most of the obstetric cases in our clinic are delivered by specialists, and where a case comes up for possible caesarean, we have a general consultation which I think is helpful.

DR. SELDOM B. OVERLOCK, Pomfret, Conn.: I am connected with one of the smaller hospitals and the conditions in regard to obstetrics are similar to those described in Dr. Birnie's paper. No one who limits his practice to obstetrics is connected with the staff though most of the men have had a fairly wide obstetrical experience. The decision as to whether or not a caesarean section is demanded is made in great part by the man who is in attendance on a given case. Following such decision, I have operated unless the case appeared to be an absolutely hopeless one. The hospital records show that in five years, 1916 to 1921, caesarean section has been done twenty-two times on nineteen different women. Four women have had the operation twice. On three of these I have operated both times and one

had the first operation elsewhere. The operation was performed eighteen times for some contraction of the pelvis, two for toxæmia, one for placenta praevia, and one for fibroid tumor obstructing the birth canal. There was no maternal mortality. Three of the infants died. One infant was a "blue baby," in one, premature birth was given as cause of death, the third was a strong and healthy child at birth and continued in good health until late in the second week, when it developed acute exfoliative dermatitis of infants and died on the seventeenth day after birth. Intra-abdominal conditions found at second operation were of interest. In two, nothing abnormal was found. Of the remaining two, one had a very thin band extending from the lower extremity of the uterine incision to the abdominal peritoneum, the other had a loop of small intestine attached to the uterus. This attachment had diminished the lumen of the gut and, no doubt, would have caused serious trouble had the loop become twisted in any way. One mother had a postoperative pneumonia and one had a postoperative hernia.

DR. JOHN M. BIRNIE, Springfield: I wish to compliment the speakers on their low mortality. I wish you to realize that these cases, to use a slang expression, were done by Tom, Dick and Harry.

One thing in regard to the postoperative findings at the second operation—that is an interesting problem. Obstetricians in Boston are unanimous in saying "once a caesarean, always a caesarean." I think that is a disputed point and one on which we cannot make a final decision as yet. I have been interested in looking into the abdomen and I have seen only one in which I could find a scar in the uterus. In quite a number of cases you can find no scar in the uterus, and in a large number there are no adhesions. I have not decided once a caesarean, always a caesarean.

Original Articles.

JEJUNOSTOMY.

BY IRVING J. WALKER, M.D., BOSTON.

ALTHOUGH jejunostomy has been considerably exploited as a surgical measure, its use seems not to have been generally adopted. Perhaps one reason for its lack of popularity is because, in most instances, it is an operation performed to save life after some primary operation which has resulted in serious complications. Again, when the latter have been so long in duration that the patient is in *extremis*, recovery could hardly be expected to result from any operation. The chief object of this paper, therefore, is a plea for early use of jejunostomy as a surgical measure.

The following are some of the indications for this operation:

I. Carcinoma of the Esophagus.

For this condition jejunostomy is certainly a better operation than gastrostomy, because of the fact that there is less pain after the former than after the latter operation. The operation of choice is the Witzel-Mayo method, as the control of the intestinal contents is far more satisfactory for permanent use than after any other procedure.

II. Ulcer of the Cardiac End of the Stomach where Removal is Impossible.

Occasionally, as in the case cited below, one wishes to rest the ulcer by withholding food by mouth as much as possible, and at the same time desires to give nourishment in order to build up the patient. This can be accomplished and the ulcer even healed, by feeding through a jejunostomy opening.

CASE. Male, aged 34 years. The history was very suggestive of chronic gastric ulcer. Bismuth series confirmed this diagnosis and localized the ulcer on the lesser curvature, near the cardiac end of the stomach. It was deemed best to do an exploratory operation, hoping that there might be some possibility of excising the ulcer. At operation, this was found to be inadvisable because of its high location. A jejunostomy was done by the Witzel-Mayo method. Patient was not allowed to swallow food, or even water, for eighteen days, the nourishment and liquids being given through a jejunostomy opening. He was allowed to rinse his mouth from time to time, being cautioned not to swallow. The patient felt perfectly satisfied, and at no time complained of hunger. On the eighteenth day, feeding was started by mouth and gradually increased until at the end of four and one-half weeks he was taking a fairly liberal diet. The jejunostomy opening closed about this time, and patient left the hospital. When seen three and one-half years later, the patient stated that there had been no return of his gastric symptoms. Apparently the ulcer had been cured by rest of the stomach.

III. Obstruction of the Pyloric End of the Stomach, Due to Cancer or Ulcer.

Occasionally one meets with such a case, where even gastroenterostomy becomes a hazardous procedure, because of the poor condition of the patient, resulting from starvation. Here jejunostomy, under novocain, can be easily done, the patient at once started on feeding, and his general condition thus improved up to the point where there is less risk in the performance of a more formidable operation.

IV. Bleeding Ulcer of Stomach or Duodenum.

Here feeding is always a problem, the aim being to rest the ulcer-bearing area as much as possible and at the same time nourish the patient. The internist meets with such cases. He could at least be spared the problem of feeding by utilizing jejunostomy until such time as feeding by mouth becomes advisable.

V. Nausea and Vomiting of Pregnancy.

Such a condition becomes most serious at times. Unquestionably, the best technique is to empty the uterus. However, some such cases are allowed to go to the point where the operation is fatal, because the patient is at a low ebb

from starvation. It was for this reason that the gynecologist feared to empty the uterus in the case stated below:

CASE. Female, aged 24 years. First pregnancy, about four weeks in duration. Had been nauseated from the first week. Nausea and vomiting have increased in severity. Has not been able to hold even water for ten days. Went to bed one week ago because she was too weak to sit up. Has been fed by rectum and given various medicines to quiet the vomiting, but without avail. One week ago the uterus was raised by packing the vagina. There was no relief from the vomiting. Pulse, 128, poor quality; temperature, 97.6. Very pale and anemic in color. Jejunostomy under local anesthesia. Intestine sutured to parietal peritoneum, self-retaining catheter placed through the opening in jejunum, and double purse-string sutures through intestine so that it encircled the catheter. Patient at once given two ounces of peptonized milk and one ounce of water through the catheter. This was repeated every hour for the next four days. Patient was allowed to swallow nothing. For the first twelve hours the vomiting and nausea continued as before the operation, and then gradually subsided, entirely ceasing at the end of four days. At this time liquids in small amounts were given by mouth. Gradually, feeding through the jejunum was lessened, until at the end of one week all nourishment was being taken by mouth. Catheter was then removed. At this time the patient's general condition was excellent. On the tenth day, the uterus was dilated and emptied of the fetal contents. A normal convalescence followed. The jejunostomy opening stopped draining on the nineteenth day. The bowels at first were moved by enemata, but after the third day, and until the catheter was removed, a solution of Epsom salts, given through the catheter, served well as a cathartic.

Following jejunostomy, there is a possibility that this pregnancy might have gone to term and patient have been delivered of a living child. However, it was decided not to risk a recurrence of the nausea and vomiting, so the pregnancy was terminated. In the future, it might be well, where jejunostomy has relieved the nausea and vomiting in pregnancy, to allow such a case to progress in pregnancy to full term, or until recurrence of the symptoms develop.

VI. Persistent Vomiting with Localized Peritonitis.

CASE. Female, aged 48 years. Cholecystectomy four years previously. At the present operation the gall-bladder was removed, but with some difficulty because of adhesions. There was considerable bleeding, necessitating drainage. Patient did fairly well for three days and then started to vomit. There was no elevation of temperature or pulse at first. The stomach was washed out repeatedly and salt

solution given intravenously several times. Vomiting increased. No marked distention except high in the abdomen. Gas fairly well expelled with enemata. Because of the fact that the patient could not retain nourishment or fluids, it was deemed best, on the tenth day, to do a jejunostomy. This was done under novocain. The original wound was also explored and a small abscess cavity found under the liver and drained. Immediately after this operation, two ounces of Epsom salts were given through a catheter. Several bowel movements followed during the next few hours. Feeding was then started and water given through the catheter. There was no vomiting from then on. Feeding by mouth was resumed on the fourth day, and gradually increased, while nourishment through the catheter was diminished and stopped entirely on the sixth day. Then the self-retaining catheter was removed by cutting off the bulbous end, allowing this to drop into the bowel. Twenty hours later, this was recovered in a bowel movement. There was considerable digestion of the skin around the jejunostomy opening for eight days after the catheter was removed. This continued until the opening closed. Convalescence from then on was uneventful. The outcome of this case would quite surely have been fatal without jejunostomy. All measures had been used to relieve the existing condition, except the discovery and drainage of the abscess cavity. It is doubtful whether this alone would have relieved the vomiting. Certainly, two objects were accomplished by jejunostomy, namely, relief of the distention, and the ability of the patient to maintain drugs, nourishment and fluids given through the jejunostomy opening.

VII. Intestinal Obstruction.

CASE. Female, aged 39 years. Patient had been operated upon twenty years previously for an extra-uterine pregnancy. The present operation was for a strangulated hydro-salpinx. The operation was a simple one, and without signs of infection. The patient did well for four days and then became markedly distended. The temperature and pulse became elevated. There was occasional vomiting. At first, enemata relieved the distention. On the sixth day the abdominal wound broke down from infection. On the seventh day a vaginal section was done because of signs of a pelvic abscess. A small amount of sero-purulent material was evacuated. The distention and vomiting gradually increased in spite of all the ordinary means to relieve the same. Temperature had now become normal, but the pulse had gradually risen to 120. There was frequent vomiting of yellowish material. It was quite evident that there was obstruction at some point low in the small intestine. Jejunostomy was done under local an-

esthesia. There was an immediate escape of gas and intestinal contents. The distention gradually diminished, and entirely disappeared in twenty-four hours. There was no vomiting after the jejunostomy operation, so feeding was started by mouth in twelve hours and maintained thereafter. It was not necessary to give nourishment through the catheter. Several bowel movements took place eighteen hours after operation. The catheter was removed on the sixth day. Patient made a normal convalescence from this time on. As yet, there are no signs of a post-operative hernia, though such is possible later. Undoubtedly, the obstruction was due to infection introduced at the time of operation, with subsequent matting together and angulation of the bowel. The usual methods to relieve this condition having failed, jejunostomy was successfully resorted to in this case.

Jejunostomy can hardly be expected to bring good results where the patient is profoundly poisoned from absorption of intestinal toxins. No case of intestinal obstruction should be allowed to reach this stage, although, unfortunately, it sometimes does, through ignorance on the part of the laity. Any case of obstruction where the vomiting demonstrates itself as having come from the small intestine, calls for an opening of the jejunum, and not at any lower point in the bowel. It is true that early, complete obstruction of the large bowel can be relieved by colostomy or ileostomy. I believe jejunostomy to be more or less futile in toxic paralysis of the bowel, due to general peritonitis. It is hardly to be expected that an absolutely paralyzed bowel can empty itself by simply making an opening at one point. Peristalsis is essential to the relief of toxic paralysis of the intestine, even where an enterostomy opening has been made.

There are essentially two methods of jejunostomy: one, the Witzel-Mayo method, and the other, simple suture of the jejunum to the parietal peritoneum, with catheter drainage. The latter is advantageous for certain conditions. The operation is best done in the midline above the umbilicus, or in the left upper quadrant through a muscle-splitting incision. If the patient is in good condition and more of a permanent opening is desired, as in cancer of the esophagus, the best operation is the Witzel-Mayo method. In the majority of cases, however, the patient is so very ill that the most simple technique is desirable. This is unquestionably jejunostomy by suture of the intestine to the parietal peritoneum, with catheter drainage. Novocain is here the anesthetic of choice. The layers having been carefully infiltrated, and sufficient time taken to insure anesthesia, dissection is carried down to the peritoneal cavity. The peritoneum is opened from about one to one and one-half inches. A finger is then introduced upwards and under

the transverse colon, and the jejunum felt. With the finger still in place, forceps or a curved haemostat is passed along the finger, and the chosen loop of bowel pulled into the wound. In every instance, one is practically sure of grasping the jejunum or at least a loop of intestine, high enough for all purposes. A few interrupted catgut sutures are then placed, uniting the intestine to the parietal peritoneum. Next, double purse-string sutures are taken and one loose knot tied in each. The gut is opened and the catheter introduced. Of late, I have been using a self-retaining catheter, about No. 18 French in size. This will not pull out as easily as an ordinary one. The catheter having been introduced, the inner purse-string suture is tied. The catheter is then pushed in a trifle, thus enfolding the intestine, and the second suture tied. This suture is carried through the catheter walls with a needle, and again tied, the catheter thus being made secure. With care, one may keep the self-retaining catheter in place a considerable period of time, removing it simply by cutting off the bulbous end and allowing this portion to drop into the intestine, where it is carried along the intestinal canal and finally passed. If the ordinary catheter be used, it will be found to remain in place about six days, at which time it will become loosened and fall out.

Ordinarily, jejunostomy will have served its purpose in six days. Where the jejunostomy is done by simple suture of the intestine to the parietal peritoneum, no attempt should be made to close the wound, as leakage is sure to take place after a few days. This leakage can be better cared for with an open wound than where the wound has been closed by layer sutures. With the Witzel-Mayo method, there is less chance of leakage, so that more detail can be carried out in closure of the wound. After the catheter has been removed, there is always some digestion of the abdominal wall by gastric and pancreatic secretions. Frequent dressings and irrigations of the wound, combined with the use of a preparation of compound tincture of benzoin and zinc oxide ointment on the skin, will usually keep this annoyance at a minimum.

In the successful cases of jejunostomy, the sinus usually closed without subsequent operations in from sixteen days to four months. Should the latter be necessary, a comparatively slight operation for intestinal repair can easily be done and the sinus closed. Of course, one should not include too large a section of the intestine within the suture line, lest sloughing of this area lead to a permanent fistula.

CONCLUSION.

Jejunostomy is a simple surgical procedure, by which intestinal gas and toxic material can

be well cared for in cases of obstruction; through which nutrition, drugs, and fluids can be introduced, and which, if utilized in time, is a life-saving measure.

CAESAREAN SECTION—DEATH ON THE TENTH DAY FROM CEREBRAL HEMORRHAGE.*

By R. S. Titus, M.D., Boston.

CASE 6. Multipara. Second pregnancy. Age, 30. Past History—Negative, save for attack of pyelitis in 1917. First Pregnancy—Normal. Membranes ruptured before labor on the twenty-third of June, 1919, and after several hours of active labor, Caesarean Section was done because head remained high. Convalescence following the Caesarean perfectly normal. Second Pregnancy—Perfectly normal, save for an unusual amount of sleeplessness. Second Caesarean done on July 24, 1921, after labor had started. The operation was a classical Caesarean; the abdomen when opened showed omentum adherent to the top of the fundus. This was tied and cut. There were no other adhesions. Male child weighing 10¼ pounds delivered. After the delivery of the baby, there was somewhat freer flowing than normal, but not enough to occasion worry. There was no vomiting at all after delivery. On the third day after operation her pulse in the afternoon was about 130, temperature a little over 99; her abdomen was soft with only moderate distention, but the stomach seemed distended enough to require lavage. The convalescence after this was perfectly normal until 10 o'clock in the evening of the thirty-first of July. When the baby was brought to her at this time to nurse, it was noticed that the patient showed no interest at all in the baby, looked straight ahead in a starey fashion and would in no way respond to questions. There was also possibly a little less motion in the right arm than in the left, but this was very slight, if any. For the previous two evenings the patient had had considerable headache. Her temperature at this time was perfectly normal and her pulse was 96. I thought the condition dementia. When seen the following morning, the patient lay in bed with a fixed expression, she opened her eyes at unexpected noises, swallowed food when put in her mouth, used both hands, the right possibly a trifle less than the left, and there were no other localizing signs. Her bowels and bladder were incontinent. Her temperature during this day was normal and her pulse was 92.

The following morning the patient's temperature was normal and her pulse 90. She seemed very much better, smiled and recognized the nurse, as was evidenced by her pressing the nurse's hand. She ate a large dish of cereal.

I had a medical man see her, to see if he could

* Reported at meeting of the Obstetrical Society of Boston, October 25, 1921.

make a definite diagnosis. His report is as follows:

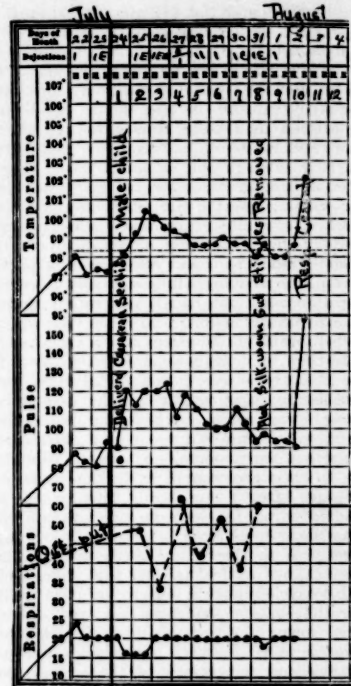
Physical Examination—Lying comfortably in bed. No dyspnea, no cyanosis. Makes no reply to questions, but when asked to put out her tongue does so. Is sensitive to pain; example, pin prick—face, arms, soles of feet. No asymmetry of face. Seems able to move all of limbs. Eyes—Pupils equal and react. Fundi normal. Ears—Both drums normal. Throat—Negative. Tongue shows no tremor, protrudes in median line. Lymphnodes—No enlargement of cervical, axillary, or inguinal. Lungs—Resonant throughout. No râles, no broncho-vesicular breathing. Fremitus normal. Heart—2-9.5 cm. Apex fifth space inside nipple line. Rate 96, regular, no murmurs. Pulses equal 96. Blood pressure 100/65. Abdomen (Recent incision covered by dressings)—soft, no tenderness, no masses. Liver, spleen, kidneys not felt. Extremities—No Kernig. Knee-jerks normal. Plantar reflexes normal. Urine—Not obtained. Blood—White count 1,600. Differential, neutrophils 86%, lymphocytes 14%. Lumbar puncture done because of white count, and 30 c.c. of bloody fluid obtained not under increased pressure. Wassermanns on blood and spine fluid negative.

About 1.45 in the afternoon of this day, after she had had three convulsions, I saw the patient, at which time her legs and arms were rigid, she was breathing normally and her pulse was under 100. Cerebral hemorrhage was naturally considered, but the reason for this hemorrhage in a person so young was hard to find. The patient remained unconscious and about 2.30 p.m. her pulse became much more rapid, and death occurred shortly after 3 p.m. The heart continued beating some time after respiration ceased. It was with a great deal of satisfaction that the family consented to an autopsy, which was performed four hours post mortem by Dr. R. N. Nye, from Dr. Mallory's Laboratory of the Boston City Hospital.

The autopsy findings were normal until one gets to the brain.

Brain—Calvarium removed with difficulty because of numerous Pacchionian granulations which extend unusually far posteriorly. Dura and longitudinal sinus not remarkable. Pia-arachnoid over hemispheres negative. In the pia-arachnoid covering the right half of the spinal cord there is a blood clot which starts about 2 cm. below the olive and extends upward over the lateral aspect of the right halves of the medulla oblongata and pons as far as the point of exit of the trigeminal nerve; this clot measures 3-4 mm. in its thickest portion. The left lateral ventricle contains dark red fluid and the right contains dark red blood clot, approximately a cast of the ventricle. This blood clot connects with a clot filling the third ventricle, and this in turn connects through the aqueduct of Sylvius to a clot filling the fourth ventricle. The clot in the pia-arachnoid covering the

spinal cord, medulla and pons is apparently a continuation of the bleeding from the fourth ventricle. The veins of Galen are thrombosed and this thrombus extends out and down into, and completely filling, the straight sinus as far as the latter's junction with the lateral sinus. The basal nuclei and fiber tracts, which form the floor of the right lateral ventricle, consist of a mass of gelatinous, almost fluid, light red-brown tissue. On sectioning the basal ganglia on the



left, numerous pin-head, bright red, irregular areas appear, probably due to diffusion of blood from cut vessels. Cortex, cerebellum and spinal cord negative. Middle Ears—Negative.

Anatomical Diagnoses: Cerebral softening (right basal ganglia) with hemorrhage into ventricles and pia-arachnoid of cord and with thrombosis of Galen's veins and the straight sinus. Pulmonary congestion, slight (right lower lobe). Subinvolution of uterus. Lactating breasts. Post-operative abdominal wound. Post-operative uterine wound. Fatty changes in aorta—slight.

Microscopical Examination: Basal Ganglia (left)—Definite thrombosis of one of the larger blood vessels. All the other larger blood vessels are surrounded by small or larger areas of ex-

travasated red blood corpuscles. Many of the smaller blood vessels are similarly surrounded by small foci of extravasated blood. In many of these the vessels cannot be made out, suggesting softening. At the peripheries of all these areas of hemorrhage are found moderate numbers of neutrophilic polymorphonuclear leukocytes. No organisms are seen. Galen's Veins—Section through both shows completely obliterating thrombi. No organisms seen. Pons—All the larger blood vessels in the peduncles are surrounded by areas of extravasated blood. There are no obvious thrombi. Some of medium sized blood vessels appear to have walls of unusual thickness. Cerebellum—Negative. Spinal Cord—Massive hemorrhage in the meninges.

A TRIBUTE TO A PIONEER IN MODERN PATHOLOGY.

By J. C. WARREN, M.D., BOSTON, AND S. J. MIXTER, M.D., BOSTON.

THE death of Dr. William Fiske Whitney on March 4, 1921, was an event which brings home to the memory of his contemporaries a long career of useful service.

Entering on his professional work at a time when the microscope had just begun to be a prominent feature in medical teaching and in the practice of medicine, he was appointed Curator of the Anatomical Museum of the Harvard Medical School in 1879. He brought with him to this office as thorough a training in the laboratory branch of medical education as prevailed at that time in the prominent medical centers of Europe.

He came into his new position at a transition period when scientific medicine was beginning to assume a prominent place in the medical curriculum. The old anatomical collection, like that of the Musée Dupuytren in Paris, and many others, represented the labors of an earlier generation. The field was an open one for the new-comer, and Dr. Whitney promptly took advantage of the situation and became a pioneer in modern museum work, which, under the fostering influence of the Association of International Museums, has of late years become so prominent a feature of the modern medical plant.

During his long and devoted term of service as Curator, the Museum has twice found a new home, and a comparison of the present quarters with those in the old building on North Grove Street, of which Dr. Holmes said: "Oh, star-eyed Science, hast thou wandered there!" is a sufficient indication of the amount of work Dr. Whitney has been able to accomplish. The character of his work in this field is best enumerated by one who has rendered him faithful and efficient service during many years.*

* Miss E. Harriet Piper.

"Dr. Whitney was especially fitted to fill the position of Curator, on account of his wide range of knowledge on all subjects, and his familiarity with more than half a dozen different languages.

"He spent much time and thought on the present home of the Collection, visiting many museums in various parts of the country, which enabled him to eliminate impractical features. When the time came for moving the thousands of specimens, the picture of every detail was so clearly in his mind, and they were packed in such a manner that he was able to put them at once in their proper places, and not one specimen was injured.

"He succeeded so well in the accomplishment of his purpose that during the Medical and Surgical Congress in June, 1921, strangers from various countries expressed their admiration of what they considered 'one of the finest museums they had ever had the good fortune to visit.'

"Dr. Whitney aimed to have the museum simple, quiet and dignified, as it represented human suffering, and he hoped in the study of the specimens, alleviation of pain might be found. It was to him a sacred trust, in the fulfilling of which he never spared himself in any way. He felt that the value of the Museum was in its use, and extended the resources as far as it was consistent with the safety of the specimens, and a request was never refused under these conditions. As a result, many valuable contributions were secured because the donor felt 'they would be carefully preserved.'"

But it is in another field that Dr. Whitney will probably be best remembered by his contemporaries. Dr. Whitney was preëminently a clinical pathologist and his intimate association with many medical and surgical colleagues at a time when the field of medical practice was greatly expanding, enabled him to be of great service to them in their practice. The pathological reports which he sent to his medical colleagues at a time when the practising physician was becoming more and more dependent upon pathological findings, were models of their kind.

It was, however, in the domain of surgery that he was able to figure as a pioneer in a special line of work. The surgeon of today has little conception of the difficulty of obtaining reports upon examination of tumors and other morbid specimens, which prevailed at that time. The specimen was often lost or rendered unfit for microscopical examination. This was true of hospital as well as of private clinical work. The Cabot endowment for a laboratory for such a purpose at the Massachusetts

General Hospital, enabled Dr. Whitney to train himself to meet the demands of the time, and this experience was followed up by his active participation in private surgical work. Accompanying the surgeon, as he did, to the place of operation, he soon found the necessity of perfecting a method of rapid diagnosis. At the hospital an appropriate apparatus made it possible for him to obtain frozen sections for this purpose.

But eventually his long experience and tactical skill enabled him to dispense with such adventitious aids, and he could give a reliable opinion on any doubtful point bearing upon the character or scope of the operation which was of invaluable service to the operating surgeon. It is hardly more than fair to say that Dr. Whitney was not only the pioneer, but the originator of this form of quick diagnosis. To many surgeons his presence at such operations was indispensable, and his final written report was of greatest value in enabling the surgeon to forecast the future of a given case.

Dr. Whitney in his long career has undoubtedly left many valuable written contributions to his department of medicine, but it will be by the work he was able to accomplish along the lines indicated above that he will be most gratefully remembered. So extensive and varied was his experience in the later years of his life that his opinion was regarded as a standard authority.

Dr. Whitney had a large amount of valuable information on many other subjects which would have been more conspicuous, had it not been for the modest estimate of his own qualifications, and his retiring disposition. He was always to be found either at his laboratory table at the hospital or at his desk in the museum.

On the removal of the Harvard Medical School to its present quarters the Museum was fortunate in receiving a handsome endowment, and the manner in which Dr. Whitney administered its finances enabled him to make, from time to time, many valuable additions, and when the call finally came, it was shown that his trust had been administered with discretion and fidelity.

Covering, as he did, a period of work which extended beyond that of a single generation, he lived to see vast changes in the methods of research and great additions to the knowledge of his special branch of medicine. He grew old in a service in which new ideas and new methods were constantly making their appearance. The vast field thus opened was greater than it was possible for any one man to cover, but the lines along which he made his first beginnings and to which it is probable he wisely confined himself hold good today.

Dr. Whitney was born in Boston March 26,

1850, and died March 4, 1921, of cerebral hemorrhage.

He graduated from Harvard University in 1871, and from Harvard Medical School in 1875. He then studied anatomy, pathology and other subjects in Vienna, Berlin, Munich and Strassburg. Upon returning to this country he was appointed pathologist to the Massachusetts General Hospital in 1878, and the following year, 1879, he was appointed Curator of the Warren Anatomical Museum, Harvard Medical School, and continued in this position for 42 years, until his death.

In 1888 he married Louisa Elliot of Stockton, Calif., who, with two sons, Lyman Fiske Whitney and William Elliot Whitney, survive him.

From 1883 to 1890, Dr. Whitney was Secretary of the Medical Faculty, and part of that time was also Acting Dean. About this time he was sent to Europe by the Government for the investigation of tuberculosis. From 1891 to 1901 he was connected with the Harvard University Veterinary School as Professor of Parasites and Parasitical Diseases. He served on the committee to superintend the building of the old medical school on Boylston Street in 1880, and twenty years later served in a similar capacity in erecting the new group of buildings on Longwood Avenue. He was also for many years on the Administrative Board of the Medical School, filling that position during the first years in the buildings now occupied by the school.

He was President of the Obstetrical Society and presided at the fiftieth anniversary. He also had been President of the Massachusetts General Hospital Alumni Association, Vice-President of the Boston Society of Natural History, having been connected with it for many years. He was a member of the American Medical Association, the Massachusetts Medical Society, the International Association of Medical Museums, and many others.

One of his life studies was carcinoma, and he was author of many articles on the subject. In 1901 he gave the Shattuck Lecture at the annual meeting of the Massachusetts Medical Society, on "The Alleged Increase of Cancer in Massachusetts." This was the result of his studies of statistics from all over the world, and from which he made his "Comparative Study of Death Rates from Cancer for the years 1850, 1875 and 1900." For many years he made up his results every five years.

The long friendship with Dr. Whitney, for some of us, had its beginning when he first took up his professional work in the old building of the Medical School in North Grove Street.—that old, cramped, inconvenient building, with its history and traditions, its wonderful teachers, its out-of-date chemical and pathological laboratories, with only two lecture rooms, its steep stairs to the anatomical amphitheatre, and its museum, in small and crowded

quarters, with its imposing array of phrenological casts, as well as the splendid dissections of Holmes, Hodges, Jackson and other masters.

We saw him bring order out of chaos, introduce what were then modern methods, and, with his exceptional skill with the microscope, added to his executive ability, assist in building up and encouraging the splendid system of pathological and bacteriological teaching of which we are so proud.

Those were the days when scientific instruments and appliances were few, and money to buy them not to be had from the school, when alcohol and other chemicals were hard to get for lack of funds. There were no microtomes worthy of the name, and all the discoveries and advances in microscopical pathology had been made through the study of hand-made razor sections, and a large, thin section was unknown, even to Bilroth. Is it not probable that training in this school of scanty equipment was what helped to give Dr. Whitney his wonderful skill in quick diagnosis, and knack in the examination of fresh specimens?

Then came the construction of and moving into the new building on Boylston Street, the building that seemed, at the time, to be ample for the needs of the school for many years. Moving the precious contents of the old museum to their new quarters that he had so carefully planned was an anxious time, for it meant not only moving without breakage, or other damage, but the elimination of the useless and unfit. This being safely accomplished, it only remained for him to move into the new Sears laboratory in order to gain fresh impetus for his work and for him to grow in knowledge and skill, a growth that ended only with his life.

And that life was a happy one; happy in his family and home, happy in his friendships,—for he never had an enemy,—happy in his work.

To that work he devoted himself too closely, his friends thought. Every day at the school, every day at the hospital, and his constantly increasing consultation and medico-legal work left little time for recreation and relaxation. Even during the short summer vacation that he allowed himself, he was always on duty call, though no one loved the call of the sea more than he did, and no one who knew him well ever summoned him from his boat or his rest without regretting the necessity for so doing.

There is no branch of the medical profession which does not owe much to Dr. Whitney, but to the surgeons associated with him he became a necessity, a part of their professional lives. The hesitating surgeon, knife in hand, uncertain whether to do a trifling operation or one terribly mutilating and severe, could always depend on the decision of his master mind and vast experience, and a great number of men and

women today owe their intact bodies, or their lives, to his quietly spoken opinion.

In the hospital or in the home, with the rich or the poor, his presence meant the difference between haphazard surgery and intelligent surgery, between life and death. In the domain of rapid, exact surgical diagnosis, he was the unquestioned leader.

Another field in which he excelled, was in medico-legal work. His opinions and conclusions were always convincing, his decisions were accepted by the counsel for both sides, and he was universally commended for his fairness to both plaintiff and defendant. He never made a statement that he was not perfectly sure of, and could substantiate in every way.

As a medical man, he was able, exact, careful, progressive and just.

As a man, husband, father and friend, he was lovable and loving, kindly, gentle, courteous and too modest; a power for good in the hospital, school and community. In his death mankind has lost a willing helper, and we, a dear and devoted friend.

A PARTIAL LIST OF ARTICLES PUBLISHED BY DR. WHITNEY.

- The Identification of Seminal Stains. (1897.)
- The Possibilities and Limitations of Microscopic Diagnosis.
- The Alleged Increase of Cancer in Massachusetts. (1901.)
- Classification of Cancer upon an Embryological Basis. (1901.)
- A Comparative Study of the Death Rates for the State of Massachusetts for the Years 1850, 1875, and 1900. (1904.)
- A Study of Birth Rates, General Death Rates and Death Rates from Cancer for the New England States for the Year 1900. (1905.)
- A Study of the Statistics of Cancer in Massachusetts for the Year 1905. (1910.)
- A Quick and Simple Method for Fixing the Blood Corporules for Differential Staining. (1901.)
- Notes on the Production of the Test Serum in Rabbits. (1902.)
- Pyronin-Methyl Green; a Brilliant Double Stain for Cells and Bacteria. (1903.)
- A Brain Hardening by Jaisserling Method Showing the Track of a Bullet. (1908.)
- The Aloin and Guaiac Test for Blood Depends Solely upon the Iron Contained in the Hemoglobin. (1907.)
- Varicose Veins of the Papilla of the Kidney. A Cause for Persistent Hematuria. (1908.)
- The Gailloux Murder. A Case Solely of Circumstantial Evidence with Conviction of the Murderer. (1909.)
- A Delicate Method of Obtaining Hemin Crystals from Minute Blood Stains. (1912.)
- Cyanic Poison and the Tests for Its Detection. (1915.)
- Observations on Obtaining Hemin Crystals from Dried Blood. (1920.)
- A Sudden Death Following Intravenous Injection of Neosalvarsan. (1921.)

THE RESPONSIBILITY FOR DIPHTHERIA

By JOSEPH GARLAND, M.D., BOSTON.

DIPHTHERIA, always a menace and public health problem, has become a public disgrace. While diphtheria was still a disease of unknown etiology, difficult of diagnosis and unsatisfactory to treat, it was feared because of the enormous toll it exacted and because the medical profession was without power in its efforts at control. These times have changed. Diphtheria can now be successfully treated and entirely controlled, and, if the proper measures were always adopted and uniformly carried

out, would eventually disappear from our list of dangerous diseases. The responsibility for the fact that it has not done so must fall upon the medical profession, which has the weapons to subdue this foe, and has not yet made full use of them.

Various terms were interchangeably used for diphtheria previous to 1821, when the present name was given to the disease by Bretonneau. Subsequently croup, even of the membranous type, was separately reported until recent years. For many years it was confused with various other diseases, including scarlet fever, until the organism was discovered by Klebs in 1883. Seven years later, Behring discovered antitoxin; in 1894 it was first used in this country, and since that time diphtheria has been a curable disease in practically all cases, if treatment is instituted early enough and in sufficient degree.

Previous to the general adoption of antitoxin, the death rate from diphtheria was about 150 persons out of every 100,000 in our population, with an average fatality percentage of about 28. Of these deaths, some 65 per cent. occurred in children under five years of age. Diphtheria antitoxin could potentially reduce this mortality to almost zero. Practically it has reduced it to about 18 deaths per 100,000 of population, with an actual fatality rate of 7-10 per cent., where it has remained stationary for years. Delay in calling the physician, mistakes in making the diagnosis, and delay in administering antitoxin in sufficient amount, are the chief factors in maintaining this level. Even with this reduction in mortality, the following figures prevail:

Calculated yearly mortality from diphtheria in the United States, 20-22,000, of which number over 60 per cent. are under five years of age.

NEW YORK CITY, 1913-1917

	MORBIDITY	MORTALITY
Total	73,068	6,291
Yearly average	14,613	1,258
1919-1920, total	over 28,000	2,280

MASSACHUSETTS, 1916-1921

	MORBIDITY	MORTALITY
1916	7,283	629
1917	10,322	838
1918	6,922	604
1919	7,929	591
1920	7,513	595
1921	9,061	476*

* First ten months only.

Recently the Massachusetts State Department of Public Health investigated one thousand deaths which occurred from diphtheria in this state, attempting "to ascertain what factor might be present and common to all of these deaths, to fix a theoretical responsibility, and to plan, as far as possible, for their prevention in the future."

Dr. Carey reported, "These statistics furnished much food for thought and some of our

findings were truly startling. Some of the more unsuspected findings were that 31.5 per cent. of these deaths occurred in individuals who had been sick one week or more without medical attention; 11.8 per cent. occurred in individuals who were moribund at the time of the doctor's first visit; 7.6 per cent. occurred in individuals in whom the condition was unrecognized until it was too late for the antitoxin to be efficacious, and 65 per cent. of these deaths occurred in children who were five years or under."

"The source of infection was given as unknown in nearly 90 per cent. of these deaths and the forms of the disease, in order of frequency, was laryngeal, pharyngeal, and nasal."

"From these investigated deaths, it appears that more attention must be paid to this group of individuals who fall within a pre-school age group, and intensive effort made to bring both to the profession and to the laity a more complete knowledge of the prevention and control of diphtheria."

In 1903, W. H. Park published a series of successful toxin-antitoxin immunizations on animals. Theobald Smith at that time suggested the possibility of immunizing children, but this was not attempted until 1913, when Behring reported results on human beings with toxin-antitoxin. In this year, also, the Schick test was introduced, and with the introduction of a practical method of determining susceptibility and natural and acquired immunity to the disease, came the possibility of putting toxin-antitoxin immunization on a practical basis. At this time Park and Zingher started their series of tests on scarlet fever patients at the Willard Parker Hospital, a series that has demonstrated the value of the test and subsequent toxin-antitoxin immunization of susceptibles.

The theory and technique of these procedures have been described so many times that it would be at the risk of needless repetition to devote much space to them at this time. Briefly, it was found by complicated tests that individuals with less than 1/30 unit of diphtheria antitoxin per cubic centimeter of blood may contract diphtheria. Those possessing this, or a larger amount of circulating antitoxin rarely, if ever, contract clinical diphtheria. The Schick test, consisting of the intradermal injection of 1/50 of the minimum lethal dose for a 250 gram guinea pig, of active diphtheria toxin, determines whether an individual possesses the protective amount of natural antitoxin. If 1/30 unit per cubic centimeter of blood is present, the injected toxin is neutralized, and no true reaction occurs. If less than this amount is present a local reaction takes place, consisting of a reddish area of infiltration, starting in 24-36 hours, reaching the height of its intensity after about four days, and then gradually disappearing. Pseudo reactions are due to an individual sensitiveness to the protein of the diphtheria bacillus, present in the test toxin.

The technique used with the products of different laboratories may differ slightly. In Massachusetts the contents of one capillary tube when discharged into 10 c.c. of sterile salt solution, as contained in the bottles provided with the outfit, furnishes a dilution of which 0.1 c.c. contains the amount of toxin required for the test. The control of heated toxin is prepared in the same way. In passing, it may be well to mention that the Massachusetts State Antitoxin Laboratory, founded by Theobald Smith, is not only licensed and inspected by the Federal Government, but conforms to rules of its own devising, exceeding in strictness those required by the Government. The reliability of products of this laboratory is above question.

Active immunization with toxin-antitoxin consists of the subcutaneous injection, in susceptible individuals, of active diphtheria toxin, sufficiently neutralized with antitoxin to render it harmless to the individual. This immunity is slow to develop, and after the course of three injections five or six months should elapse before re-Schicking, to test for the desired immunity.

There occurs, probably, not over 2 per cent. of error in the Schick test. In annual re-tests, carried out in institutions by Dr. Zingher, Dr. Schroeder, and others, 1.5 per cent. of the negatives of one year develop a positive reaction on the next annual test. Dr. Park believes this change is to be accounted for by error in technique and difference in toxin preparations. Slight fluctuation in the amount of natural antitoxin possessed by the individual may cause borderline cases to give, at times, positive and, at times, negative, reactions.²

The increase in the use of the Schick test and toxin-antitoxin has been phenomenal in the past four or five years, with New York as the pioneer city. Work in the public schools of New York was started in 1916, when the Department of Education gave permission to carry out the Schick test and active immunization in about two hundred and fifty schools.

During the past year, funds having been obtained from the Manhattan Chapter of the American Red Cross, the Schick test was applied in forty-four of the larger schools of Manhattan and the Bronx, over 52,000 children having been tested between the last of February and the end of the school year. This was all done, of course, with the parents' consent after circular letters had been distributed.

Children showing positive reactions were immunized with toxin-antitoxin. As a rule, children with straight positive reactions showed little local disturbance. Children with positive combined reactions showed considerable local redness, swelling, and tenderness of the arm at the site of injection, and varying degrees of constitutional disturbance. None showed any after-effects, and practically no local reaction oc-

curred among younger children. In over 50,000 immunizations there was never a single harmful result or a single infection.

In a school where those showing a positive test had received all three injections and had been re-tested after five months, 87.5 per cent. had become immune. Those still positive gave much fainter reactions and they received a fourth injection. Of schools where two injections had been given and re-tests made after two or two and one-half months, the per cent. of immunization varied from 64.5-76.1 per cent.

Other interesting data regarding susceptibility and immunity have been brought out by Zingher in this large series. Children from homes of the well-to-do show a higher percentage of positives; as high as 67 per cent. in some schools. In schools on the East Side of New York the percentage was as low as 16-20 per cent. The Lawrenceville School for boys at Trenton, N. J. (ages 12-21), showed 79 per cent. positive. At George School, Georgetown, Pa., the percentage was 75. In a rural school at Shilo, Cumberland County, N. J., the percentage of positiveness was 85.

Racial factors were also brought out. The colored race gives a high percentage of positives. Italians from crowded sections give the lowest. Bohemians and Irish are about one-third positive. Children of the same family have a tendency to show similar reactions. Contact immunization seems to play an important part in the production of natural immunity, and the same contact produces development of hypersensitiveness of individuals to the protein of the diphtheria bacillus, resulting in pseudo reactions.

Zingher has also, for purposes of practicability, made a division into age groups which it might be well to present here.

A. Infants Under Six Months.

(a) Under three months. Mostly have natural immunity. Do not develop active immunity after toxin-antitoxin.

(b) Three to six months. Generally immune. Toxin-antitoxin not as effective as later.

B. Pre-school Age.

(a) Six months to two years. Omit Schick test. Give toxin-antitoxin to all.

(b) Two to five years. Schick test may be used, but positive reactions very high. Simpler to inject all.

C. Public School Age.

(a) Five to six years. Advisable to inject all.

(b) Six to fifteen years. Use Schick test first.

D. High School Age.

Fifteen years and over. Schick test first.²

Some of these subdivisions would seem to be unnecessary. For practical purposes, four main divisions, according to age groups, with a separate procedure for each group, would be simpler.

A. Under Six Months.

This group is generally immune, but since the occasional case of diphtheria is liable to be fatal, the Schick test should be performed. If negative, re-Schick after six months, when the passive maternal immunity is lost, or, as the child would then fall into the next group, proceed with immunization. If the test is positive, proceed with immunization as with any other positive case.

B. Six Months to Six Years.

The Schick test being generally positive, immunize without testing.

C. Six to Eighteen Years.

Use the Schick test and immunize the susceptibles.

D. Over Eighteen Years. Adult Group.

Use the Schick test and advise as to the desirability of immunization, especially if the individual is liable to exposure to diphtheria.

The example set by New York is now being followed by many communities over the country. In Chicago, a commission appointed by Health Commissioner Robertson, has advised that city to make use of the Schick test and toxin-antitoxin, and over 12,000 persons have been immunized. This is but one example of many.

In Massachusetts, the work is under way, but much remains to be done. Certain school districts have taken up the work in Boston, notably the William Lloyd Garrison District; and other cities, such as Northampton, Holyoke, Chicopee, Springfield, Hingham, Brockton, Winchendon, Lawrence, and Waltham, are following the lead set by Lynn and Newton, two pioneer cities that have ably taken control of the situation. Work in the schools is soon to be undertaken by Framingham and Winchester.

Demonstrations of the test were conducted by the writer in various cities of the State during the spring, in the interests of the Committee on Public Health of the Massachusetts Medical Society,⁴ and further meetings of the same nature are, at present writing, being planned for the winter.

All school children in the Commonwealth should have the opportunity, through the schools, of being tested and immunized. All health boards should be equipped and ready to perform the test and subsequent immunization. Every family physician should be prepared to

use the test among his practice, or if too busy or otherwise unable to carry it out personally, should see that it is done by a capable individual, whether by the school physician, at a Board of Health clinic, or elsewhere.

Diphtheria is a preventable disease, and the agents for its prevention have been placed in the hands of the medical fraternity. The responsibility for their use and the responsibility for the combined existence of this disease is ours alone. Education of the laity, the awakening of the public to the benefits that can be derived from any form of medical advancement, are in our hands, and our duty is clearly before us.

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Book Reviews.

Therapeutic Immunization. By W. FORD ROBERTSON, M.D. New York: William Wood & Co.

In this volume of less than 300 pages, the author discusses the general subject of immunology and the entire field of bacteriological methods and, in addition, the treatment of diseases by means of bacterial vaccines. His chief ally in this work seems to be R. W. Allen, to whom he refers constantly as his *vade mecum*.

The first chapter is devoted to a discussion of the terminology and theories of therapeutic immunization. He then, at great length, discusses the bacteriological methods and the differential diagnosis of species, the methods of clinical investigation of infections, and the standardization of bacterial emulsions. So far, although the subject matter is somewhat sketchy considering the profundity of the subject he discusses, his information is adequate. In looking over the rest of this volume, one, at first, meets with certain statements which are surprising, to say the least. For instance, referring to the pneumococcus of pernicious anemia, he states that he has known for years "that the commonest form of pernicious anemia is due to an intestinal infection by a special type of pneumococcus." He bases this on thirteen cases.

In taking up the treatment of bacterial infections, one finds statements of a similar caliber. Concerning influenza, for instance, one reads that "therapeutic immunization has been found to cut short the malady," and "It has been satisfactorily established that preventive

inoculation against the bacillus of influenza protects from the disease." He believes that pulmonary tuberculosis, even in the advanced stages, can be satisfactorily treated with various forms of tuberculin. Vaccines are likewise of distinct value in acute lobar pneumonia, chronic bronchitis and asthma. Ozena yields to treatment with vaccines, as does chronic otitis media, hay asthma, bronchial asthma and, as mentioned above, phthisis, concerning which he says, "There is no form of chronic infection in which good results may be expected with more confidence than in pulmonary tuberculosis." Acute tonsillitis, gastric catarrhs, and, *mirabile dictu*, duodenal ulcers, are benefited by this means of treatment. The two cases which he mentions recovered "under surgical measures and therapeutic immunization." His opinion in this instance is based on three cases of duodenal ulcer in which the flora of the stools were studied.

The reviewer's credulity had already been stretched to the breaking point at this stage, but when he found that mucous colitis, appendicitis, neurasthenia, exophthalmic goitre, disseminated sclerosis, tabes dorsalis, the acute insanities, dementia praecox, etc., are benefited by bacterial vaccines, he felt that nothing more concerning this volume need be said, except that he cannot recommend it for anything except as a medical curiosity.

Cancer and its Non-Surgical Treatment. By L. DUNCAN BULKLEY, Senior Physician to the New York Skin and Cancer Hospital. 451 pp. Wm. Wood and Company.

The argument of Dr. Bulkley's treatise on cancer may be briefly stated in this way: Cancer is increasing among civilized peoples, but is found only rarely among aborigines. The latter lead simple lives, free from worry and self-indulgence. The former, especially the well-to-do, are self-indulgent, overfed, under-exercised. They consume food rich in purin bases—meat, tea and coffee. Somewhere in the divergent customs of the two peoples lurks the cause of cancer. As Dr. Bulkley puts it (p. 167): "There must, therefore, be some occult, if you please, process going on in the system, which lays the foundation, so to speak, for the morbid response of the cells to such irritants, something which so alter their nutrition that disturbance of their integrity results, and instead of pursuing their normal course of homologous reproduction, or fulfilling their secretory powers, they take on a new heterologous formation and begin a wild, unrestrained, and destructive course, with the well-known results. This primary or basic cause is found in the disordered nutriment which they receive through blood which has been deranged in various ways and by various causes."

Having stated this hypothesis as a fact (and who indeed can say that it is not one?), the author proceeds to apply it in the treatment of malignant disease. The surgical treatment of cancer he shows to be very often inefficient. Figures and quotations from a number of leading operators are given, all pointing to the low percentage of cures obtained. More persons died of cancer in 1915, following the propaganda for early operation put forth in 1914, than in the average years of the preceding semi-decade.

In place of surgery, he proposes "proper dietetic, hygienic and medicinal measures." The dietetic measures consist of a practically vegetarian diet, arranged to give 2100 calories per day, of which 140 are protein. Hygienic measures consist of a well-ordered life, thorough mastication of food, regulation of the bowels and well-ventilated sleeping apartments. Medicinal measures consist of the administration of potassium salts, which are supposed to be inimical to cancer cells, thyroid gland extract, to increase the metabolism, and aspirin for pain. If the lesion is suitable for local treatment, it is painted with iodine, or thiol, or ichthyol. In carcinoma of the uterus, douches of carbolic acid and boracic acid are prescribed.

"By these means," he says, "the disease can be and has been successfully checked, and cancerous lesions actually removed without surgical intervention" (p. 240). "I do assert that the percentage of benefit and cures in reasonable cases is far, far greater under the line of treatment here advocated than under that commonly employed" (p. 241).

A number of case reports are given.

It is hard to criticize with any degree of asperity as sincere a book as this one of Dr. Bulkley's. Here is his creed, practised, as he himself says, for over 30 years. His theory of the cause of cancer, vague though it is, may yet contain much truth. There must be some reason for the vastly greater incidence of cancer in civilized people, and Dr. Bulkley's guess at the reason may be as good as the next man's.

His method of handling these cases is, without doubt, beneficial. If we all ate less, chewed more and worried less about taxes, we should live longer.

As a specific treatment for carcinoma, the method does not ring true. In the first place, if its results were so successful as the author claims, it would long ago have been universally accepted. Even the case reports given in his book do not sound convincing. The majority of them are very vague. A man with "typical cancer" of the tonsil (no pathological report) changes his diet, gargles soda bicarbonate, and is cured. A case of cancer of the bladder "writes that he is much relieved." Several of the really striking cases had been treated

with heavy doses of radium before coming to Dr. Bulkley. Obviously, they came to him during the depressed stage which follows adequate radiation, and their later improvement, which would have occurred anyway, he attributes to his method.

Dr. Bulkley is to be commended for his effort to find the cause of cancer. He is to be commended for the meticulous care with which he instructs his patients as regards their mode of life. His opinion that his method is more efficient than surgery in the treatment of such cancers as can be removed surgically is wrong. His teaching in this respect is heresy; his book should be burned at the stake.

The Care of Eye Cases. By ROBERT HENRY ELLIOT, M.D., F.R.C.S. Oxford Medical Publications.

Dr. Elliot has added a new book to the list already written by him. This new book is a manual on the care of eye cases, written particularly for the general practitioner, nurse, and student. It treats in a practical way many subjects which are omitted from larger textbooks on ophthalmology.

Part I of the book deals with the subject of treatment. It gives in detail many important steps in the process of ocular treatment which would not be otherwise obtained except by actual experience. For instance, one chapter is devoted to the subject of Drops and another to Subconjunctival Injections.

Part II contains a brief résumé of ophthalmic diseases and methods of refraction.

Part III gives in detail a list of the instruments used in the different ocular operations and several pages of illustrations of ocular instruments.

The book should find favor as a manual in the training schools of all eye hospitals.

Anatomy of the Human Orbit and Accessory Organs of Vision. By S. ERNEST WHITNAL, Professor of Anatomy, McGill University, Late University Demonstrator of Human Anatomy, Oxford.

This book is the latest ophthalmological work in the Oxford Medical Publications. It is the most comprehensive treatise on the subject of the Human Orbit that the reviewer has had occasion to see, containing as it does about four hundred pages of text profusely illustrated with photographic cuts and drawings.

The subject-matter of the work originally formed the substance of a series of lectures given to candidates for the Oxford Diploma of Ophthalmology. The author covers in minute detail the anatomical structure of the orbit and related parts. The contents are presented in

three parts: Part I covers Osteology; Part II, The Eyelids; Part III, Contents of the Orbit.

Limited space forbids a detailed review of this unusual book, but to the surgeon, either oculist or rhinologist, the work should prove of great interest and value in the study of the anatomy of the orbit.

The illustrations are mostly from photographs of dissections preserved in the Oxford Anatomical Museum, and are unsurpassed in the portrayal of the subject.

Radiographic Technique. By T. THORNE BAKER, A.M., I.E.E. 196 pp. New York: William Wood and Company: 1921.

The production of x-ray plates of diagnostic value is essentially a photographic process. Much of the advantages of expensive high-powered x-ray equipment and elaborate exposure technique is often lost through faulty dark room manipulation. Mr. Baker has produced a manual of the essential principles of photographic processes as applied to radiography. The subject covers a good deal of technical material, but on the whole is expressed in non-technical language and readily understood by the average physician.

The first chapter is devoted to a very elementary description of the principles involved in the production of x-rays as exemplified by coils and gas tubes. Chapter two is devoted to photochemistry. The characteristic properties and special features of x-ray plates are discussed, and the factors which govern speed, density, contrast, exposure time, and radiometric measurements are explained. Chapter three is devoted to the theories of development. The function of each of the ingredients in developing and fixing solutions is described, and the various methods of controlling the photographic processes by varying these factors are illustrated. The reasons for poor plates, technical flaws, etc., and the methods of avoiding or correcting them, form a valuable part of the book. There are also some very good suggestions on the arrangement of a photographic dark room, and on the method of handling and storing plates. Chapter four is a rather technical discussion of the construction of intensifying screens from the photo-chemical viewpoint. There are some good suggestions on the selection of screens for special purposes. Chapters five and six, on fluoroscopy and the location of foreign bodies, are brief and elementary. Chapter seven, on dark-room arrangement and equipment, should also be useful to the beginner. Chapter eight, on the methods of intensification and reduction of unsatisfactory negatives, covers a ground with which the average physician-roentgenologist is unfamiliar. Chapter nine describes the advantages and disadvantages of the various printing papers as applied to the radiographic image.

It contains some excellent suggestions for those who are preparing x-ray illustrations for publications. Chapters ten and eleven mention briefly some of the possibilities of x-ray photography in industrial fields and in spectrum analysis.

In summary, this volume as a purely photographic manual fulfills a very definite need. It contains a number of useful photographic formulae. It should be especially valuable to the general practitioner who has installed an x-ray unit, but is not familiar with the principles of photography.

Clinical Surgical Diagnosis. By F. DE QUERVAIN; translated by J. SNOWMAN, M.D. New York: William Wood and Company. Third English Edition.

This is the translation of the seventh edition of the original, which has been thoroughly revised, incorporating the recent progress in both military and civil surgical diagnosis. For instance, the accurate localization of foreign bodies by the use of x-ray is thoroughly covered. Its 914 pages are very generously illustrated with 731 excellent photographs and seven colored plates.

Professor de Quervain, who has succeeded to the chair of surgery held by Kocher, needs no introduction to the profession of this country. He writes in a very readable style rendered even more vivid by the profuse use of illustrations. Unfortunately, certain subjects are passed over rather lightly, while the material on a few other conditions is divided between different chapters. This somewhat impairs its value as a reference book. However, for use as a text for students this lack is more than counterbalanced by the great clearness of description and illustration.

Life and Times of Ambroise Paré. By FRANCIS R. PACKARD, M.D. New York: Paul B. Hoeber. 1921.

This new biography of Paré, by the Editor of *The Annals of Medical History*, is an authoritative contribution to our knowledge of one of the makers of modern medicine. Its primary object is to present a new and complete English translation of Paré's *Apology and Treatise Containing the Voyages Made into Divers Places*, which occupies more than half of the present volume. This translation is literal and idiomatic, and reproduces the spirit of the author and his times as vividly as is possible to those unable to read the original text. The book is abundantly illustrated with numerous text wood-cuts, 27 full-page plate engravings, and two folded maps of Paris in the sixteenth and seventeenth centuries. We owe

much to Dr. Packard for bringing before the medical public this biography and translation of one of the principal works of the greatest military surgeon in the history of France.

Preventive Medicine and Hygiene. By MILTON J. ROSENAU, Professor of Preventive Medicine and Hygiene, Harvard; Director of the School of Public Health of Harvard University and the Massachusetts Institute of Technology; formerly Director of the Hygienic Laboratory, U. S. Public Health Service, etc.

With Chapters upon: "Sewage and Garbage," by GEORGE C. WHIPPLE, Professor of Sanitary Engineering, Harvard; "Vital Statistics," by JOHN W. TRASK, Assistant Surgeon-General, U. S. Public Health Service; "Mental Hygiene," by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene, etc.

In his fourth edition of *Preventive Medicine and Hygiene*, Professor Rosenau has consistently adhered to his original purpose to give in textbook style a comprehensive summary of up-to-date information regarding those medical and scientific subjects which furnish the basis for public health work. The book represents a very extensive revision of previous editions. The following entirely new subjects have also been added: Public Health Methods and Measures; Relative Values in Public Health Work; A Public Health Program; Organization of Health Departments; Median Endemic Index; Housing; Rural Sanitation; Public Health Education; Public Health Nursing; Drug Addiction; Alcoholism; Undernutrition; Sanitary Surveys; Infant Mortality; Koch's Laws; Intelligence Quotient; Vitamins; Oral Hygiene; Ocular Hygiene; Personal Hygiene; and a Laboratory Course in Preventive Medicine and Hygiene.

Several chapters have been contributed by other writers and, in all, Professor Rosenau makes acknowledgment of special assistance from about forty different persons prominent in medical or scientific fields, besides giving copious references to bibliography.

In supplementing his own work for years by thus freely calling upon others, Professor Rosenau has succeeded in condensing in a book of about 1500 pages a remarkable amount of information regarding the subjects with which the book deals.

As might be expected from Professor Rosenau's long and varied practical experience in public health work, he tends to present this information with view to its practical usefulness. The work is full of practical suggestions and valuable admonitions, of which an unobtrusive enumeration of some of the common conditions

other than syphilis, which will give a positive Wassermann reaction, may be cited merely as one refreshing example.

Whoever undertakes to give, within a brief space, text-book instruction regarding subjects so wrapt in obscurity or uncertainty as, for example, bodily metabolism, or the etiology of certain diseases or the relative values of expenditures for public health purposes, cannot avoid furnishing opportunities for criticism. In spite of the effort to bring this edition up to date, there are some instances where it would have been possible to have given more definite information regarding certain matters than has been given. There are also instances where some readers would be better pleased if the author had expressed himself more decidedly with respect to the merits of some accepted theories and conventional practices which are discussed in the book.

No one else has, as yet, attempted to bring together so much material as is to be found in this work, and for this reason the book will prove especially valuable as a book of reference for the student, the physician, or the health officer. It is, moreover, written in a style which makes it easy and interesting reading for anyone wishing to inform himself regarding practical aspects of preventive medicine and hygiene.

A Pocket Surgery. By DUNCAN C. L. FITZ-WILLIAMS, C.M.G., M.D., Ch.M., F.R.C.S. (Edin. and Eng.). Fellow (Late President) of the Royal Medical Society of Edinburgh; Fellow of the Medical Society of London and Royal Society of Medicine; Surgeon in Charge of Out-Patients and Lecturer in Clinical and Operative Surgery, St. Mary's Hospital, London; Surgeon, Hospital for Sick Children, Paddington Green; Surgeon to Mount Vernon Hospital for Tuberculosis; Consulting Surgeon, Margaret Street Hospital for Consumption and Diseases of the Chest. Author of "A Manual of Operative Surgery," etc., etc. New York: Longmans, Green and Co.; London: Edward Arnold. 1921. (All rights reserved.)

"In the *Pocket Surgery* an attempt has been made to confine within a very small compass the whole range of examination surgery. Surgical textbooks usually begin small and end by being enormous—so enormous: indeed, as to be almost useless to the student from an examination point of view. The *Pocket Surgery* attempts to give all the necessary headings and only a very short account of the mere details which the student should have learned elsewhere. Surgery cannot be learned from a book; lectures, demonstrations, ward work, out-patient

work and, above all, experience—these are the teachers of surgery. Here we only try to supply the key to the cupboard in the student's brain, in which the mass of detail must be stored."—*From the Author's Preface.*

This *Pocket Surgery* is a small, red-covered book of 350 pages. It is well bound and well printed in small, clear type, on good, unglazed paper. It is not illustrated.

The reviewer has sincere doubts whether there is need of, or an excuse for, such a volume. If, however, such a need does exist, this volume fills it extremely well. It is very much better than volumes of similar size and purpose published in America, so far as the reviewer is acquainted with such books. As a quiz compend of surgery, from a British standpoint, the book may be recommended.

A Manual of Practical Anatomy. By THOMAS WALMSLEY, Professor of Anatomy, Queen's University, Belfast, Ireland. In Three Parts. London and New York: Longmans, Green and Company. 1921.

The first part of this admirable guide to the dissection of the human body has been favorably reviewed in the *JOURNAL*. The second part, dealing with the thorax and abdomen, is illustrated by a series of 82 excellently drawn text-figures. The anatomic descriptions are concise, the directions for dissecting clear. The work is a valuable teaching manual, whose completion will be awaited with expectancy and interest.

Army Anthropology. Volume XV. of Statistics of the Medical Department of the U. S. Army in the World War.

This is a compilation of statistics resulting from the medical examinations of the first million recruits. It is surprising how much of interest can be found in this study: For example, a comparison of the height-mean stature of the first million recruits, ages 21 to 30 years, inclusive, including white color, is 67.49 inches. These figures are practically the same as those of recruits in the Civil War. As is pointed out in comment upon this question, these figures would seem to show that the infusions into our population of large numbers of immigrants of low stature has had practically no effect upon the average height.

The relation of height and weight to the existence of various pathological conditions, such as asthma, defective teeth, adenoids and hypertrophied tonsils, is commented upon. It also developed that there is a relation between hypertrophy and excessive height.

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THE PROGRESS OF HOSPITAL STANDARDIZATION.

SOME idea of the progress which has been made in the direction of hospital standardization may be gained from a perusal of the report of the hospital conference held at the Clinical Congress of the American College of Surgeons on October 24, 1921.

Dr. Franklin Martin reported that "in 1918, of the 692 general hospitals of one hundred or more beds, in the United States and Canada, 89 met the standard; in 1919, 198; in 1920, 407, or 57 per cent.; and this year 568, of a total of 761 hospitals, or 74 per cent., meet the standard of the College."

The campaign for the standardization of hospitals arose in answer to the question whether hospitals were giving to the public which supports them the best possible service. As Dr. E. A. Codman, of Boston, pointed out some years ago, end-results are the true test of surgical efficiency.

At the conference held in Philadelphia last October, discussion centered around several questions in particular.

In regard to staff meetings, a number of speakers emphasized the necessity of regular meetings at which the results of the previous month's work should be thoroughly gone over.

Each department head should report, and in case of deaths, the attending physician should give an abstract of the case. It was suggested by a man, himself a hospital trustee, that boards of trustees should know more of hospital problems other than financial, and should occasionally meet the members of the staff.

Hospital records should be carefully kept, of course, but beyond everything, they should be honest.

The nursing problem was again considered. Dr. Charles Mayo advocated the two years' course, with a third and optional year for specialization. With this plan, Miss Mary Riddle, Superintendent of the Newton Hospital, Newton Lower Falls, Mass., was not in accord, maintaining that three years was none too long for the making of a nurse.

The conference, as a whole, showed the great interest in hospital standardization which is felt throughout the United States and Canada.

Standardization of hospitals means standardization of the work done therein. This applies chiefly to surgery, for in strictly medical cases, errors of diagnosis are less likely to be discovered, and the physician's mistakes do not confront the one who makes them as do the surgeon's. In short, the practice of surgery will have to conform to a certain standard of diagnosis, technic and judgment. This is as it should be, provided a surgeon's work is judged sympathetically by a jury of his peers. The spirit of helpful criticism necessary to the success of such a departure is the spirit which the Hospital Standardization Committee is endeavoring to develop. It was much in evidence, apparently, at the conference in Philadelphia.

CRITICISM OF MEDICAL SCHOOLS.

THE annual report of Dr. Nicholas Murray Butler, President of Columbia University, contains a serious criticism of medical teaching, both in relation to the expense involved and the departure from the earlier conception of the function of medical colleges. He predicts that if present methods continue, the public will not sustain these institutions. He characterizes medical teaching as the "spoiled child of education," and charges that medical education is about a half century behind other forms of higher instruction. His interpretation of this condition is that it is due to the intellectual isolation of the medical profession, for since the practitioner is so busy with the exacting details of his work, and his associations are very largely limited to his companions in the same calling, medical men become provincial.

One solution, according to Dr. Butler, will result from the immediate association of the medical school and university in order that teachers and students may come in daily contact with the workers in other fields. He suggests another

reform, which consists in limiting the curriculum to teaching the essentials of medicine and increasing the number of students so that the expensive equipment shall not be restricted to preparing a small number of students for practice. The latter part of his contention is obviously sound, and many students of medical pedagogy have publicly expressed the same opinion. Billings and Bevan, a year ago, brought this idea forcibly before the conference on medical education in Chicago, and the general response was quite in harmony with this opinion.

It has seemed to many that the recommendation for standardization has led to a competition among medical colleges with the purpose of trying to ascertain how far the mental capacity of students may be stretched to meet the exacting and comprehensive problems of special departments. Although some egotistic advertisers claim to be specialists in all departments of medicine, a sane man would not believe that even a well-equipped medical school could develop the mind of a student, or, indeed, that of any other person, so that he would be regarded as a specialist in even one or two departments of medicine through study covering a four-years course, even with a hospital year added. Undergraduate instruction in the specialties should be limited to an endeavor to give the student a general idea of the pathology met with in each particular field, and a familiarity with such therapeutic measures as every man in general practice may be called upon to employ.

Our medical schools should realize that there is a moral obligation to meet the needs of the public, and if the need is to be met, it must be through the training of practitioners of general medicine, as well as of specialists. To do this, the major effort should be to teach anatomy, physiology, ordinary biochemistry, pathology, pharmacology, general internal medicine, general surgery and *obstetrics*, and no man should be given a degree until he has first demonstrated reliable efficiency in these subjects *at the time of his graduation*. State examining boards are often reminded of the fact that an applicant cannot be expected to remember the underlying principles on which practice is founded. It is no unusual thing for a recent graduate to say that he was not interested in one subject, but that he had concentrated on others.

This does not mean that specialists should not be trained—far from it; but the faculty of a medical school may properly estimate the capacity of a student, and to those indicating aptitude for special study and training, suggest that, after having shown creditable proficiency in the fundamental sciences and understanding of the practical application of internal medicine, surgery and *obstetrics*, then, and only then, should they be encouraged to take up the study of a specialty.

If medical schools would resolutely adopt this policy the public would be the gainer, and specialties would not lack for devotees.

The profession as a whole appreciates the great service rendered by specialists. It is, however, possible that the exact science of the specialist has tended to obscure the glory of the man whose case cannot always be cured by science, but who must employ the art of medicine in the human problems of life. His judgment, understanding and faith may keep his patient well or, in some instances, he may have to carry on the work of alleviation where the specialist, with all his power for good, has been impotent.

Specialists are indispensable. The well-educated, honorable and judicious general practitioner is needed today as much as ever. Will our medical schools try to supply this latter type?

THE VALUE OF NECROPSIES.

WHILE there can be no doubt that in the majority of hospitals situated in the large medical centers there is an effort on the part of the staff to obtain necropsies, there is a sad lack of interest concerning this subject in many institutions and almost a total disregard for it among practitioners. There is no debate among the members of the medical profession as to the value of necropsies. All admit that our first real knowledge of disease dates from the time of Giovanni Battista Morgagni (1682-1771), Professor of Anatomy in Padua, the real founder of human pathology. It was he who first carefully compared the clinical aspects of disease with the anatomic findings in a large number of cases, and it is upon his work, and a continuation of it through the succeeding centuries, that our principles of diagnosis, prognosis and treatment are based. Anyone familiar with the historic development of our scientific knowledge of disease realizes that the pathologist, though not in contact with the living patient, has contributed his share toward the aim of all medical sciences,—the relief of human suffering.

Any physician who has taken the opportunity to correlate the clinical studies of a series of patients with the findings of the pathologist, readily admits the limits of the physician's ability to arrive at a correct diagnosis even when aided by the most modern methods. In patients where the diagnosis is apparently obvious it is surprising how often unlooked-for complications are found, though the primary diagnosis may be correct. Every autopsy teaches a lesson of some value. The physician who constantly has his clinical observations checked by the pathologist develops a judgment based on facts which are otherwise unobtainable, and hence is far better equipped to render patients intelligent

care and advice than the one who assumes that his diagnosis is always right, though unverified by necropsy. Other things being equal, it is doubtless true that the hospital which has the advantage of a large number of post-mortem examinations will have a staff of superior judgment and ability.

Granting that every member of the medical profession appreciates the importance of necropsies, it is a strange situation that most practitioners and many hospitals make little or no effort to obtain them. In a hospital with proper facilities there is no excuse for disregarding such an opportunity, while among physicians whose practice is chiefly concerned with patients in their own homes the difficulties are greater, though even here they are not insurmountable. If the physician is unable to do his own necropsy, he can easily obtain the services of a trained pathologist. The Harvard Medical School, for instance, will supply a pathologist to the physicians of Boston and immediate vicinity on request. If the members of the patient's family are unable to pay a reasonable fee for the performance of necropsy, the pathological department of this medical school will conduct the examination free of charge on recommendation of the attending physician.

It is perfectly true that many individuals hesitate to grant permission for necropsy upon the body of a relative, but a majority of persons have a most reasonable attitude if a simple, straightforward explanation is made them and the benefits of such an examination are emphasized. There are no mysterious methods of success in obtaining permission for a necropsy. There are, however, a few essentials relating to the attending physician which must be present before much success is obtained. He must first realize fully the great benefits of such an examination to the family of the patient, the physician, and society at large. *Second*, he must have an earnest desire to seek the truth concerning the cause of death, and a willingness to disregard the thought of possible embarrassment and undesired criticism if his diagnosis does not coincide with the pathological findings. *Third*, he must be willing to take sufficient time, often from an already overcrowded life, to present the request to the relatives and to perform the autopsy or make arrangements whereby a trained pathologist may do it.

Sir James Mackenzie has repeatedly emphasized the unique and useful position which is occupied by the general practitioner, wherein he is able to observe the earliest symptoms of disease, and frequently has the opportunity of following the course of the disease over a considerable interval of time. The combination of such a period of observation, correlated with pathologic examinations, is accessible to all, and would add its share to the advancement of medical science.

NEWS ITEMS.

DR. HARRY N. ARCHIBALD, of Cheshire, is confined to the House of Mercy, Pittsfield, Mass., following an appendectomy.

THE January meeting of the Franklin District Medical Society was held at the Mansion House, Greenfield, Tuesday, January 10th, 1922, at 11 A.M.

Subject: Acute and Chronic Arthritis.

1. Etiology and Pathology of Acute and Chronic Arthritis—Dr. Edgar H. Hughes.
2. Treatment of Acute and Chronic Arthritis from a Medical Standpoint, together with the Prognosis—Dr. Henry A. Suitor.
3. Treatment of Acute and Chronic Arthritis from the Surgical and Orthopaedic Standpoint—Dr. Charles F. Canedy.

Mr. Macdonald was present and explained the Group Indemnity Policy approved by the Council November 9, 1921.

DR. J. H. MATHER, *Pres.*
DR. CHAS. MOLINE, *Sec.*

THE East Boston Medical Society held their annual dinner and election of officers on January 10, 1922, at a popular hotel in Boston. The following officers were elected: Dr. Robert Bonney, President; Dr. Richard Houghton, Vice-President; Dr. Enos Bowen, Secretary; Dr. A. L. McLaren, Treasurer; Dr. James H. Strong, Member of Executive Committee. All physicians who care to attend any of the meetings of the Society are cordially invited to attend.

E. E. BOWEN, *Secretary.*

INSPECTION OF SOUTH DEPARTMENT, BOSTON CITY HOSPITAL.—The trustees of the Boston City Hospital invite the medical profession and others who may be interested, to inspect the new isolation wards of the South Department, Wednesday, January 25, from 10 A.M. to 3 P.M.

WORCESTER STATE HOSPITAL MEETING.—At the bi-monthly staff luncheon held at the Worcester State Hospital, Dr. George A. Dix read a paper. His subject was, "The Time Has Come to Part with Many Things," and was largely on syphilis in its many manifestations. The paper was extremely interesting and was discussed by the staff members present.

LECTURE BY MR. ERNEST HAROLD BAYNES, RELATING TO VIVISECTION.—On Saturday evening, January 14, Mr. Ernest Harold Baynes delivered before the Æsculapian Club and guests, a lecture in defense of vivisection. This lecture is the one which Mr. Baynes is planning to give before lay audiences, and was given, as Mr. Baynes himself said, in order that the medical profession might help him by their criticisms. If one could judge from the applause and com-

ments heard after the meeting, that portion of the medical profession which attended the lecture had no comment to make, except in approval.

The lecture was illustrated by lantern slides and each point in the argument, as it was made, was well driven home. Mr. Baynes first explained his own position in the matter, and told how he had been led to investigate conditions in animal laboratories by the belief that they could not be as terrible as the antivivisectionists claimed. He spoke briefly of conditions in laboratories throughout the country, and then took up the refutation of the antivivisectionists' accusations. He analyzed the testimonials purporting to come from prominent men, both physicians and laymen, and showed that, certainly, in the most striking instances, these testimonials were either without foundation in fact, or were extracted from a context and given in such a way as to mislead the reader. He produced definite repudiations of these testimonials in a number of instances.

The affidavits collected by the antivivisectionists, in which were described the alleged conditions of bloody and wanton cruelty occurring daily in animal laboratories, were taken up. One of the most positive of these was shown to have been given by a woman who was employed as a cleaner in the Rockefeller Institute and who had endeavored to bribe other employees to make similar affidavits.

Mr. Baynes then took up the benefits which had accrued to animals themselves from animal experimentation and showed a number of pictures of sheep, swine and cattle suffering from various plagues.

He concluded his lecture by pointing out the importance of the menace of the antivivisectionists, urging the medical profession to do all in their power to help clear away the cloud of ignorance and misinformation by means of which the antivivisectionists were able to enlist the sympathy and financial aid of well-meaning but incredulous people.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

—The regular midwinter meeting of the Society was held at the Boston Medical Library on Friday, January 20th, 1922, at 12 o'clock, noon.

Paper: Dr. Edwin H. Place spoke on the Diagnosis and Management of Diphtheria; and Dr. Joseph Garland described and then demonstrated the Schick Test. The meeting was then opened to general discussion. Lunch was served at 1.15 P.M.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting of the Worcester District Medical Society was held at Red Men's Hall in Worcester at 4.15 P.M., January 11, 1922. President J. J. Goodwin, of Clinton, braved the worst storm of the season and presided, as usual.

Dr. A. J. A. Hamilton, of Boston, read a paper on "End-Results of Various Methods of

Treatment of Surgical Disease of the Stomach and Duodenum," which was illustrated with lantern slides. The paper was based on a questionnaire which he had sent to 100 of his operative cases in his private practice. His conclusions were that all chronic stomach diseases which show, by x-ray, deformity of the stomach, should be operated upon at once, because the cure was more certain and the patient at work much quicker than by medical treatment.

Dr. Lester C. Miller discussed the medical treatment of stomach ulcers. He said that the treatment was much the same as twenty years ago—largely rest and dietetic. He quoted Einhorn's series of 300 cases treated by duodenal feeding, and concluded his remarks by emphasizing the fact that no routine treatment was adapted to all cases, but that each individual should have treatment suitable to his needs.

The papers were discussed by Drs. Arthur Barnes, Frank W. George, R. W. Swann, and A. M. Shattuck.

On motion of Dr. A. M. Shattuck, a vote of thanks was given to Dr. Hamilton for his interesting paper.

The directors of the Fairlawn Hospital, a new hospital about to be opened by the Swedish residents of Worcester, have announced their plans for remodeling the buildings of the Norcross estate at Fairlawn. These plans call for a sixty-bed hospital and a nurses' home. A special maternity ward will be provided. One hundred thousand dollars are needed to complete the plans, of which fifty-one thousand have been secured.

BOSTON MEDICAL HISTORY CLUB.—The postponed annual meeting was held Tuesday, January 24, 1922, at 8.15 P.M.

Program:

"History of Medicine in Its Relation to the History of other Sciences."—George Sarton.

"Medical Magic in Frazer's 'Golden Bough.'"—Dr. Coriat.

"Protracted Pregnancies."—Mr. Alfred Ela.
EDW. C. STREETER, Sec.

WEEK'S DEATH RATE IN BOSTON.

DURING the week ending January 7, 1922, the number of deaths reported was 211 against 211 last year, with a rate of 14.40. There were 29 deaths under one year of age against 23 last year.

The number of cases of principal reportable diseases were: diphtheria, 48; scarlet fever, 47; measles, 72; whooping cough, 4; tuberculosis, 14. Included in the above, were the following cases of non-residents: diphtheria, 4; scarlet fever, 9; tuberculosis, 5;

Total deaths from these diseases were: diphtheria, 3; scarlet fever, 1; tuberculosis, 11. Included in the above, were the following cases of non-residents: diphtheria, 1; tuberculosis, 2.

Miscellany.

THE LEGISLATURE.

The following named members of the legislature have been appointed on the Committee on Public Health.

Senate: Pearson, of Middlesex; Hardy, of Worcester; Griswold, of Franklin and Hampshire, and Babb of Suffolk.

The House: Glazier, of Hudson; Ryder, of Middleborough; Hunnewell, of Boston; Early, of Newton; Abbott, of Andover; Hale, of Springfield; Bell, of Somerville; Kerr, of Lawrence; Bartlett, of Brockton; Kelleher, of Cambridge, and Cortanza, of Boston.

Members of the Society who desire to see the text of any bill can secure it by applying to a Senator or Representative.

If, however, a member may not find it convenient to secure an interview with his Representative, he can write to him; but the JOURNAL will cooperate and secure bills when requested.

On January 4, Gov. Channing H. Cox addressed the Legislature. The following is a quotation from his address (Senate 1):

"In its welfare work, in its care of the unfortunate and the sick of body and mind, and in its endeavor to reduce human wastage, Massachusetts has made an enviable record. The progress made in this direction must be continued. In such endeavor the benefits cannot be measured in dollars and cents. The return is to be found in the satisfaction of relieving suffering and in the development and protection of strong men and women. We must never stop to balance dollars against the chance of relieving misery. The Commonwealth might well, however, increase its charges for certain special activities which benefit only particular individuals and corporations, so that their cost may be fully paid by the benefited parties and not from general taxation."

The prevention of mental disease was considered at length. In speaking of the hospitals for those suffering from mental diseases, he says:

"The great sums expended by the Commonwealth for the maintenance of these institutions emphasizes the fact that much is to be done in the field of practical mental hygiene to stop the increasing numbers for whom institutional care must otherwise be provided. It is an accepted fact that approximately one-half of all patients admitted to our State institutions are suffering from mental disorders that could have been prevented. Our efforts must be continued to overcome a hesitation to use our State hospitals,—a hesitation due in part to ignorance and in part to the continuing effect of old tradition. Every effort must be made to bring treat-

ment to bear upon the early stages of mental disorder, through a continued campaign of education and in trying to promote the best possible conditions in childhood for those who are handicapped either by mental defect or by nervous instability which may later lead to nervous and mental disorders. The Commonwealth has recognized the importance of a practical mental hygiene program, and has provided much legislation to make effective such a program.

"The State's program for the feeble-minded embraces the following factors:—

1. Identification.
2. Registration.
3. Education.
4. Supervision.
5. Segregation.

"The establishment of school clinics,—the Department of Mental Diseases cooperating with the Department of Education,—whereby school children three or more years backward are examined, represents an extraordinary achievement, there being no known similar provision anywhere else in the world. These clinics have been made constructive from the start, the purpose of the examination being not to discredit the backward child in any way, but rather to ascertain exactly what school progress he is making; to insure that he is not worked beyond his capacity, and that not too much is expected of him; and, so far as possible, to ascertain any special reasons for his lack of development.

"Approximately 3,000 children have been examined since the organization of the clinics in the spring of 1921. The cordial cooperation with which this work has been received is noticeable; both the parents and the school authorities are using results of the examinations to do more for the children than has ever been done before. As a result of this work specially unstable children may receive adequate supervision and care.

"The continuing census of the feeble-minded, which the Department of Mental Diseases has under way, has far-reaching possibilities; the regular checking up of the lists will show those defectives who are not capable of community life and also those of the hereditary grade who are likely to propagate their kind and who need institutional segregation. It will also show the well-developed defectives who are conducting themselves properly and who can safely be trusted in the community.

"There are now large numbers of feeble-minded patients of our schools for the feeble-minded living in the community under slight supervision, practically all behaving themselves and the majority supporting themselves. Recent legislation provides definitely for community supervision of the feeble-minded, and with provisions for the necessary machinery to carry on this work a much larger number can be cared for in the community, and room made available

for those requiring, temporarily at least, institutional care. The schools for the feeble-minded should, in the future, function very largely in giving a period of training to large numbers and then return this group to the community to earn their own living. It is interesting to note that a group of 93 from one of our schools for the feeble-minded were supervised in the community last year and earned, collectively, \$102,000.

"There is great need for extension of this principle of community supervision as far as possible instead of expensive institutional support and the large expenditures for the construction of buildings (new construction costs approximately \$1,500 per bed; annual maintenance, at least \$300 per patient). The importance of the feeble-minded problem now warrants the recommendation that there be created with the Department of Mental Diseases a Division for the Feeble-minded.

"The State hospital system conducts well-organized out-patient clinics. This work should be continued and encouraged. A practical program in mental hygiene looks forward to co-operating with the courts in the examination of any one where there is the least suspicion of mental disease or mental defect. This should be encouraged, to the end that all courts having to do with juvenile delinquency could be furnished with a psychiatric report.

"The Psychopathic Hospital provides a unit of the general hospital type for the reception of early cases of mental disorder. This is a very noticeable tendency to make use of such small units by individuals who, either themselves or their relatives, are unwilling otherwise to use the State hospital. To take advantage of this principle there is legislation available for the organization of small psychopathic hospital units.

"Massachusetts has gone far in providing care and treatment of the insane and mentally defective. The work is being well done to-day and large appropriations are necessary for its continuance. The only escape from constantly increasing expense lies in the adoption of more preventive measures. I urge the continuance of the support given last year to a program of prevention to offset the growing and increasing demands for institutions to care for those whose mental disorders could have been prevented, and to the development of all means to care for the individual, especially the feeble-minded, in the community under supervision rather than the more expensive plan of establishing new hospital facilities."

THE Governor commends in general the provisions and administration of the Workmen's Compensation Act, but suggests certain changes for the benefit of the families of those who die as a result of injuries received.

In regard to habit-forming drugs, the Gov-

ernor recommends that Congress be memorialized in favor of the passage of legislation which will make the Massachusetts standard the national standard.

Among the matters to be considered by the Legislature are the recommendations of the State Department of Public Health (House 180). Of general interest is their recommendation of acceptance of the provisions of the so-called Sheppard-Towner bill, "for the Promotion of the Welfare and Hygiene of Maternity and Infancy."

House 181 embodies their recommendation. Section 1 accepts the act. The other sections are as follows:

SECTION 2. The department of public health is hereby directed to coöperate with the federal board of maternity and infant hygiene in the administration of the provisions of the act of congress as aforesaid, and to do all things necessary to entitle the commonwealth to receive all the benefits thereof.

SECTION 3. The treasurer and receiver general is hereby designated as the custodian of all the funds allotted to the commonwealth from the appropriation made by said act of congress, and he shall receive and provide for the proper custody and disbursement of the same in accordance with the said act.

SECTION 4. The federal funds so received shall be paid out in accordance with the provisions of the aforesaid act upon requisition of the department of public health as reimbursement for expenditures already incurred.

SECTION 5. This act shall take effect upon its passage.

The other recommendations of the Department of Public Health deal with the methods of analyzing liquors, the publication of information relative to foods, the examination of vinegar, the examination of plumbers, the purchase of additional land for the Westfield Sanatorium and further sanitary improvement of the Neponset River.

On petition of Philip Castleman, a resolve is introduced authorizing the Department of Public Health to carry on a rat survey in co-operation with the United States Public Health Service, with the view to the prevention of the introduction and spread of bubonic plague and for the aforesaid purpose the sum of dollars is hereby appropriated.

The Department of Mental Diseases (House 115) looks forward to the opening of the School for the Feeble-Minded at Belchertown, the buildings for which are nearing completion.

They recommend further that the parole privileges for inmates of schools for the feeble-minded be extended, and that more continuous supervision of the feeble-minded be provided (House 119).

On the petition of D. A. Warren, an act (House 196) is proposed which would compel the school committee of every town, under direction of the Department of Mental Diseases,

to ascertain annually the number of children of school age three years or more retarded in mental development; and compelling each town in which there are ten or more such children to provide special classes suitable for their instruction, and forbidding the placing of children of retarded mental development, who are public charges, in towns where such classes are not provided.

The Special Commission, appointed last May, have reported relative to the establishing and procuring quarters for defective delinquents (Senate 57). They recommend the segregation of defective delinquents at the State Farm in Bridgewater, where they can receive remedial and custodial rather than penal treatment. Such steps are in line with the recommendations of the Governor.

On the petition of Geo. W. Galvin, a bill has been introduced which would allow any inmate of an insane hospital the privilege of sending any uncensored letters which the patient saw fit to write.

The Board of Dental Examiners recommend an adequate salary for the Secretary of their board, an annual registration of dentists, reciprocity with other states in the registration of dentists, and further recommend that the widow, executor or administrator of a registered dentist who has died, or the wife of one who is incapacitated, may continue his business under a registered dentist.

On petition of Joseph Homer, a bill has been introduced (House 310) which would compel the Board of Dental Examiners to keep a public record of their proceedings and a registry of all registered dentists.

Workmen's Compensation.

Various bills in reference to workmen's compensation have been introduced.

Those of interest to the medical profession deal with medical fees. Two introduced on petition of Robert Robinson and D. V. McGowan, respectively, seek to establish the "basis upon which medical fees shall be approved." Both bills would add to the present law a provision that the fees approved shall be "not less than the average minimum fee in the locality or district in which the service is rendered."

The McGowan bill is as follows:

"During the first two weeks after the injury, and if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity and in all cases where medical treatment will minimize the disability or aid in the restoration of the injured to working capacity, for a longer period, in the discretion of the industrial accident board, the insurer shall furnish adequate and reasonable medical and hospital services, and medicines if needed. The employee may select a physician other than the one provided by the insurer, and the reasonable cost of these services shall be paid by the insurer, subject to

approval of the department. *Such approval shall be based upon the allowance of not less than the average minimum fee in the locality or district in which the service is rendered.* Such approval shall be granted only if the department finds that the employee was so treated by such physician, and in all cases that the services were adequate and reasonable, and the charges reasonable. If any case where the department is of opinion that the fitting of the employee with an artificial eye or limb, or other mechanical appliance, will promote his restoration to industry, it may order that he be provided with such an artificial eye, limb, or appliance, at the expense of the insurer."

The words in italics in the first sentence are those substituted for these words in the present law, "in unusual cases in the discretion of the department for a longer period."

The later italicized words are those added in both the McGowan and Robinson bills.

The provision of the McGowan bill would eliminate the objectionable clauses of the present law limiting the payment for professional care, in ordinary cases, to two weeks, and would do away with the constant dispute as to what constitutes an "unusual" case.

Another bill introduced on petition of Joseph Zinskin deals with hearings on physicians' fees. It reads as follows:

"Fees of attorneys and physicians and charges of hospitals for services under this chapter shall be subject to the approval of the department. If the insurer and any physician or hospital, or the employee and any attorney, fail to agree as to the amount to be paid for such services, either party may notify the department, which may thereupon assign the case for hearing by a member thereof. The member shall file his decision with the department and such decision shall be reviewable by the industrial accident board, as provided by Section eight. If no review is claimed from the decision of the member within seven days, such decision shall be enforceable in accordance with Section eleven."

Vaccination.

The Joint Committee favor a bill (House 495) to extend compulsory vaccination to the private schools, and to make the exemption certificate more than a farce. The bill is similar to that advocated for several years. It reads as follows:

"A minor under fourteen years of age who has not been vaccinated shall not be admitted to a public or private school except upon presentation of a certificate signed by a registered physician that the physician has, at the time of giving the certificate, personally examined the child and that he is of the opinion that the physical condition of the minor under fourteen years of age is such that his health will be endangered by vaccination. The said cer-

tificate shall state the reasons for the opinion of the physician who signs it, and shall be valid only for one year from the date thereof."

Further clauses guard against too early return to school after exposure to contagious disease.

The opponents of vaccination have introduced two bills, one sponsored by the Medical Liberty League, permitting any unvaccinated child to attend school if a parent or guardian signs a certificate stating that he, or she, is opposed to vaccination.

The provision in this bill, that the school board may exclude an unvaccinated child during an epidemic, nullifies the aim of the medical profession to eliminate an unvaccinated class in the community.

Another bill proposes that damages may be recovered from cities and towns for injuries caused by compulsory vaccination. It reads as follows:

"If a person who is vaccinated under the direction of the Board of Health of a city or town sustain bodily injury by reason of the negligence or unskillfulness of the physician or nurse employed by the Board of Health of such city or town in inoculating such person or attending him at the time of inoculation, or because the foreign substance with which he was inoculated was not pure, such person so injured may recover damages therefrom from such city or town in an action of tort."

The possibilities for litigation under such a bill would be boundless. Those opposed to vaccination hold that any vaccination inflicts bodily injury and that all vaccine is impure.

The Department of Education recommends (House 99) legislation regulating the medical inspection of school children. Their report says:

"The law at present requires that 'every child returning to school without a certificate from the board of health after absence on account of illness or from unknown cause must be referred to the school physician for examination and diagnosis.' To comply with this law is found to be practically impossible in most towns and cities of the State. The proposed amendment limits the requirement to cases of pupils returning to school after suffering from infectious or contagious disease.

"The present law also requires that every child in school who shows signs of ill health or of suffering from infectious or contagious disease shall be referred to the school physician unless at once excluded from the school by the teacher. In view of the recent legislation providing for school nurses, it seems desirable that the school nurse should share with the school physician in handling this phase of medical inspection work."

The bill that is proposed (House 101) provides for this. It is as follows:

"The school committee shall cause to be referred to a school physician for examination and diagnosis every child returning to school without a certificate from the board of health after absence on account of illness from infectious or contagious disease. Every child attending school who shows signs of ill health or of suffering from infectious or contagious disease, shall be referred to the school nurse or the school physician, unless at once excluded from the school by the teacher. But in the case of schools remotely situated, the committee may make such other arrangements as may best accomplish the purposes of this section."

Physical Examination of School Children.

A bill has been introduced on petition of William Albert McCoy which aims to nullify the present law by the substitution of the word "may" for the word "shall." The bill is as follows (House 601):

"An Act relative to the physical examination of pupils in the Public Schools.

"Section fifty-seven of Chapter seventy-one of the General Laws is hereby amended by striking out the word 'shall' on line 1 and inserting in place thereof the word 'may'; and by striking out the words 'and shall require a physical record of each child to be kept in such form as the department may prescribe,' commencing on line 6 and ending on line 8, and inserting in place thereof the following:—but no child shall be required to undress, either partially or entirely, for the purpose of being so tested or examined, nor shall any child be so tested or examined, whose parent or guardian files with the teacher, his or her written objection to having his or her child or ward so tested or examined,—so as to read as follows:

"Section 57. The committee may cause every child in the public schools to be separately and carefully tested and examined at least once in every school year to ascertain defects in sight or hearing, and other physical defects tending to prevent his receiving the full benefit of his school work, or requiring a modification of the same in order to prevent injury to the child or to secure the best educational results, but no child shall be required to undress, either partially or entirely, for the purpose of being so tested or examined, nor shall any child be so tested or examined, whose parent or guardian files with the teacher, his or her written objection to having his or her child or ward tested or examined."

Medical Registration.

Legislation concerning, directly and indirectly, the Board of Registration in Medicine promises, this year, to be a matter of great importance.

The present Secretary of the Board will retire in March, after many years of most valuable service. A bill has been introduced (House 779), on petition of S. A. Gilbert Cox, to make the Secretary of the Board a lawyer instead of

a doctor, and to make him a member of the board.

A bill referred from the last session will be considered this year, permitting the appointment of more than three members of the board of seven from one school of medicine. Originally intended to compel the recognition of homeopaths, eclectics and allopaths, this provision of the bill has outlived its purpose. The Joint Committee representing the Massachusetts Medical and the Massachusetts Homeopathic Medical Societies favor the abolition of the requirement. The Eclectic Society, at its last meeting several years ago, had dwindled to an attendance of fifteen. The medical profession ask for a board which will test rigidly the knowledge of those applying for registration; they would impose no restriction whatever upon the methods of treating disease adopted by honorable and well-trained physicians. With this point made absolutely clear, the profession will oppose to the utmost any proposition for the establishment of special boards for the examination and registration of those who wish to practise osteopathy, chiropractic or any other cult. We ask simply that all applicants for a license to practise medicine in any form, prove that they have an adequate grounding in the fundamental sciences, chief of which are anatomy, physiology and pathology.

On this ground the Joint Committee will oppose the bill introduced to establish a special chiropractic board which there is reason to believe will, this year, be advocated very strenuously.

A bill has been introduced by the Committee on Education of the Massachusetts Medical Society, and which is endorsed by the deans of Harvard, Tufts, and Boston University Medical Schools, which would require for registration a year's internship after graduation and which would require two years of college training, or its equivalent, before the study of medicine is undertaken. The bill will be favored by the Joint Committee. It reads thus:

"Applications for registration as qualified physicians, signed and sworn to by the applicants, shall be made upon blanks furnished by the board of registration in medicine, herein and in sections three to twenty-three, inclusive, called the board. Each applicant who shall furnish the board with satisfactory proof that he is twenty-one or over, and of good moral character, and that he has creditably served as House Officer or Interne for a period of not less than one year in a general hospital, which hospital had a daily average of not less than twenty-five patients during the service of such applicant, and that he has received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine, which gives a full four years' course of instruction

of not less than thirty-two weeks in each year, and which requires of each student who enters the said medical school after the first day of September, 1924, for the purpose of securing the degree of doctor of medicine, or its equivalent, evidence of completion of pre-medical study as follows: Graduation from a standard high or secondary school and satisfactory completion of at least two years of study in a college of liberal arts or scientific institute or school recognized as reputable by the department of education of this Commonwealth, which college of liberal arts, institute or school, has required not less than nine hundred and sixty hours of work during the said two years. An applicant who offers evidence of pre-medical study under the provisions of this section, must have devoted not less than one hundred and ninety-two hours to the study of chemistry, one hundred and twenty-eight hours to the study of physics, one hundred and twenty-eight hours to the study of biology, and ninety-six hours to the study of English composition and literature, shall, upon payment of twenty-five dollars, be examined, and, if found qualified by the board, be registered as a qualified physician and entitled to a certificate in testimony thereof, signed by the chairman and secretary. An applicant failing to pass an examination satisfactory to the board shall be entitled within one year thereafter to a re-examination at a meeting of the board called for the examination of applicants, upon payment of a further fee of three dollars; but two such re-examinations shall exhaust his privilege under his original application. The board, after hearing, may revoke any certificate issued by it and cancel the registration of any physician convicted of a felony; or, after hearing, may revoke any certificate issued by it and cancel for a period not exceeding one year, the registration of any physician who has been shown at such hearing to have been guilty of gross and confirmed use of alcohol in any of its forms while engaged in the practice of his profession, or of the use of narcotic drugs in any way other than for therapeutic purposes; or of publishing or causing to be published, or of distributing or causing to be distributed, any literature contrary to section twenty-nine of chapter two hundred and seventy-two; or of acting as principal or assistant in the carrying on the practice of medicine by any unregistered person or by any person convicted of the illegal practice of medicine or by any registered physician whose license has been revoked either permanently or temporarily; or of aiding or abetting in any attempt to secure registration either for himself or another, by fraud; or in connection with his practice, of defrauding or attempting to defraud any person. The board may subsequently, but not earlier than one year thereafter, reissue any certificate formerly issued by it or issue a new certificate, and register anew

any physician whose certificate was revoked and whose registration was cancelled. Nothing in this act shall be construed as discriminating against any applicant who was able to comply with the provisions of section two of chapter 112 of the General Laws, previous to the passage of this act.

A bill has been introduced and will be favored by the Joint Committee, to provide for the registration of medical students for the limited practice of medicine.

SECTION 1. An applicant for limited registration under this act who shall furnish the Board of Registration in Medicine with satisfactory proof that he is twenty years of age or over and of good moral character, that he is enrolled and has creditably completed not less than two years of study in a legally chartered medical school in good standing, which medical school has the power to grant degrees in medicine, and that he has been assigned to the care and observation of persons needing medical service, by a teacher in a medical school as defined in this act, may upon payment of a fee of one dollar be registered by said Board as an assistant in medicine with the right to sign birth certificates and perform such service as may be delegated to him by his instructor under the following restrictions:

SECTION 2. Such registered assistant in medicine may not by himself alone use or apply any narcotic drug as defined in the Statutes of this Commonwealth relating to the possession, application or distribution of narcotic drugs; he may not, except in the presence of and under the supervision of the instructor in the medical school of which he is enrolled, advise or employ any treatment for diseased conditions, nor perform any operation which is or may be carried out by the use of any instruments other than those which may be necessary in dealing with normal cases or those used in the examination of patients for the purpose of making a diagnosis; he may not sign certificates of death.

SECTION 3. Nothing in this act shall be construed as preventing the employment of any measure for the relief of suffering or prevention of death in an emergency whenever it may be found to be impossible to secure the services of a registered physician.

The purpose of this bill is simply to provide in a useful manner for the education of medical students under the supervision of their instructors.

Bills for the Registration of X-ray Technicians and bills for the registration of medicines and other measures of importance will be presented and discussed in later issues of the JOURNAL.

A MEETING of the Worcester North District Medical Society was held at the Fav Club, Fitchburg, Tuesday, January 24th, 1922, at 4 P.M. The speaker was Dr. John T. Bottomley, of Boston. Subject: "Jaundice."

The Massachusetts Medical Society

ON TRANSFERRING FROM ONE DISTRICT TO ANOTHER.

January 13, 1922.

A. Wilson Atwood, M.D.,

Secretary of the Worcester District Medical Society.

Dear Doctor Atwood:

I am glad you have written me about the procedure of transfer from one district medical society to another, for there has long been a good deal of misunderstanding about this matter. We look to our by-laws, the rules of the game we are playing, for directions when in doubt. Chapter III, Sections 2 and 3, cover this case. You will note in Section 2, that the membership of each district society "shall consist only of fellows, retired fellows, and honorary fellows, having legal residences within the boundaries of the district, except in cases decided otherwise by vote of the council." The next section shows what is to be done by fellows who live in one district and wish to be members of some other district, having their places of practice in other than the district in which they reside. Therefore it is plain that if a fellow moves from one district to another he automatically transfers his membership from the district where he resided to the one where he has moved. All he has to do is to get into touch with the secretary of the district into which he has moved and let the secretary know that he has arrived. The fellow or the secretary will notify the secretary or librarian of the parent society and the transfer will be made in the Directory of the Society. The meaning of the word "Reside" was settled by the council in 1876 as meaning "Legal residence." This is in accord with the laws of Massachusetts in determining the very important questions that constantly arise as to what is a person's legal residence. As I understand the matter, a person must have lived in a definite town or city for the term of six months and, further, must have signified that he considers that town or city his legal residence before he is reckoned as a legal resident of that city or town. When he has acquired a residence he is assessed as a citizen and his name is placed on the voting list and the law regards him as residing in that place and in no other. Under our by-laws, a fellow may live and reside in one town and belong to a district society of which that town is not a component part, if he so elects, but he is required to take the steps outlined in Section 3 of Chapter III and also receive the vote of the council before he can belong to another district. Under all other conditions, he is listed where he has a legal residence, so far as that can be determined.

Trusting that I have made the matter clear,
I am,

Faithfully yours,
WALTER L. BURRAGE, *Secretary*.

EXTRACT FROM CHAPTER III OF THE BY-LAWS OF
THE MASSACHUSETTS MEDICAL SOCIETY.

Section 2. The membership of each district society shall consist only of fellows, retired fellows, and honorary fellows, having legal residences within the boundaries of the district, except in cases decided otherwise by vote of the council.

Section 3. Any fellow wishing to change his membership from one district society to another without a change of legal residence must petition the council in writing to grant such a change, stating the reasons therefor, and send such petition to the committee on membership and finance, which shall consider the petition, shall consult with the officers of the two districts concerned in the change, and shall report recommendations to the council. The council shall decide by vote whether or not such petitions shall be granted.

Correspondence.

SCHICK TESTING IN THE BOSTON PUBLIC SCHOOLS.

Mr. Editor:

Your editorial of December 29th, 1921, here quoted,

"One may be pardoned for suggesting that since vaccination is urged for protection against smallpox, that the Schick test should be used for determining the susceptibility to diphtheria, and also the employment of toxin-antitoxin as a preventive for the non-immune. Even if the city is not prepared to undertake this work, advice to parents is timely.

"Diphtheria kills more children in Massachusetts than smallpox, and yet, under present well-known methods, is almost as controllable. Massachusetts had 885 cases of diphtheria reported during October of this year, and the number increased to 1185 in November. If these were smallpox figures, there would be a general alarm. The mortality percentage in diphtheria is often higher than is found in smallpox epidemics of mild type."

suggests this statement from the Director of Medical Inspection, Boston Public Schools:

Impressed with the advantages of the Schick test for the prevention of diphtheria, the Director of Medical Inspection recommended its adoption in two districts. The school Committee approved this recommendation in November, 1921.

Dr. Solomon H. Rubin, school physician in the William L. Garrison and George Putnam Districts (enrollment about 2,700 pupils), was assigned to this work. Suggestions for the cards and record blanks were taken from the New York system.

Local physicians were informed of the proposed work and its advantages, and 1,500 circular letters were sent, through the children, to the parents, advising them in regard to the Schick test, and requesting consent for its application to their children.

A mothers' meeting was held in the William L. Garrison school at which Dr. Edwin L. Place, Superintendent, South Department, Boston City Hospital, described for their information the Schick test and its advantages. Dr. Ceconi, representing Board of Health, cooperated.

The following is a report on the work in the William L. Garrison District:

Date on which Schick testing commenced, Nov. 1, 1921
Number of pupils in district 1,149
(permission requested from parents of each child)

Number of pupils whose parents gave permission for performance of test	531
Number of pupils Schick tested	531
Number positive	373
Number negative	148
Number combined	9
Number pseudo	1
Total	531

Toxin-antitoxin inoculations were given only to a small number of the positive children, principally to determine the reaction of the first inoculation.

Number of pupils given first inoculation	145
Number of pupils given second inoculation	131
Number of pupils absent from school on day of second inoculation	14

The third inoculation was not given owing to the vacation intervening.

Arrangements have been made with the Master of the George Putnam District for the application of the Schick test to children bringing written permission from their parents or guardians. A teachers' meeting was held on December 21st, 1921. There was a discussion of the work, and it will undoubtedly receive the full cooperation of the teachers.

In the William L. Garrison District, less than 50% of the parents gave their consent. This may have been due to several factors: the indifference on the part of the parents, the fear of consequences. Some parents who were either unacquainted with the work, or who feared the consequences, are now willing to have their children Schick tested. The wishes of the parents have always been respected. In a few instances, parents have been unwilling to permit the second inoculation and in some cases they would not permit immunization after the Schick test had been performed.

There have been very few instances of illness resulting from immunization by toxin-antitoxin. Headache, malaise, fever, local redness, and induration at the point of inoculation, also pain in the immunized arm occurred in a few cases. Toxin-antitoxin has been given, with no after-effects, to children showing organic lesions of the heart. It has been demonstrated that the younger the child, the more likely he is to endure without consequences the toxin-antitoxin.

The fact that there are 373 positive reactions against 148 negative in a small group of 531 children indicates the value of Schick testing.

The cases of diphtheria that have been reported in this district were cases that if Schick tested would show a positive reaction.

Some local physicians have advised parents against the Schick test. On the contrary, a large number of physicians whose children attend the Garrison school have requested that their children not only be Schick tested but that they be immunized, a manifestation of confidence in Schick immunization.

The Director of Medical Inspection believes that the introduction of the Schick test to the profession of Boston will, in a few years, practically stamp out diphtheria. He questions the advisability of the school authorities adopting this test in all of the schools, but its success in one district will demonstrate to the public its importance in the prevention of diphtheria.

After the family physician has used this method for several years on children of pre-school age, few cases will be discovered in our classrooms.

The benefit to the public will repay the School Committee for the time and money expended in this preliminary testing.

WILLIAM H. DEVINE, M.D.,
Director of Medical Inspection,
Boston Public Schools.

NOTICES.

THE MASSACHUSETTS MEDICAL SOCIETY.—A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, Wednesday, February 1, 1922, at 12 o'clock, noon.

Business:

1. Report of Committee of Arrangements for annual meeting, June 13 and 14.
2. Report of Committee on Membership and Finance, on membership.
3. Reports of Committees on Petitions for restoration to the privileges of fellowship and presentation of new petitions.
4. Appointment of delegates to the annual meetings of the following state medical societies: Maine, New Hampshire, Connecticut, Rhode Island; also to the House of Delegates of the American Medical Association; also to the conferences of that association on Health and Public Instruction and Medical Education and Hospitals at Chicago in March, 1922.
5. Report of Treasurer and Auditing Committee.
6. Report of Committee on Membership and Finance, on finance, with Budget for 1922.
7. Reports of special committees.
8. Incidental business.

WALTER L. BURRAGE, Secretary.

BOSTON, JANUARY 25, 1922.

Councillors are reminded to sign the attendance book before the meeting.

The Cotting Lunch will be served in the Supper Room immediately after the meeting.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Tufts College Medical School, Tuesday, January 31, at 8.15 P.M. Business:—Communications: Pemiplegia in Syphilis, Abraham Myerson, M.D.; Demonstration of Intracranial Hemorrhages, Timothy Leary, M.D.; Discussion: Edward N. Libby, M.D.

Refreshments after the meeting.

BRADFORD KENT, M.D., Secretary,
798 Blue Hill Avenue, Dorchester.

THE NEW ENGLAND PEDIATRIC SOCIETY

The seventy-second meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 10, 1922, at 8:15 P.M.

The following papers will be read:

1. President's Address.
Richard M. Smith, M.D., Boston, Mass.
2. Is there More than One Kind of Rickets?
Edwards A. Park, M.D., New Haven, Conn.
(Discussed by F. R. Ober, M.D., Boston.)
3. The Experimental Feeding of a Vitamin-Deficient Diet, with Especial Reference to Scurvy.
L. W. Smith, M.D., Boston.

Light refreshments will be served after the meeting.

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—At the meeting of the Research Club of the Harvard Medical School on Friday, January 27th, in the Amphitheatre in Building A, at twelve-thirty o'clock, Dr. F. H. Verboeff will talk on "Hypersensitiveness to Lens Protein, and Its Practical Importance."

THE MORTON HOSPITAL, TAUNTON, MASS., has arranged for monthly clinical meetings. Reports of cases will be presented and will be discussed by the Staff.

JOSEPH L. MURPHY, M.D.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—Winter meeting, Wednesday, February 1, 1922. Program: 10.30 A.M., North End Mortuary, North Grove Street, Boston. Demonstration, medico-legal autopsy, Dr. George B. McGrath; 2.00 P.M., Sprague Hall, S. The Fenway, Boston. Regular meeting. Communications: 1.—Technique of a Medico-Legal Investigation, Dr. George B. McGrath, lecture; 2.—Special Technique for Study of Pelvic Organs, Dr. F. H. Baker; 3.—The Chemist's Part, Dr. William Boos.

J. C. FRASER, Weymouth, President.

ERNEST L. HUNT, Worcester, Recording Secretary.

BOOKS FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:—

Ephraim McDowell, "Father of Ovariotomy." By Schaeffer. Published by J. B. Lippincott Co., Philadelphia and London. 331 Pages. Price \$5.00.

Exophthalmic Goitre. By Walter Edmunds. Published by Baillière, Tindall and Cox, London. 36 Pages. Price 3/6.

Pulmonary Tuberculosis. By Sir James K. Fowler. Published by Macmillan & Co., Ltd., London. 284 Pages.

Domiciliary Treatment of Tuberculosis. By F. Rufenacht Walters. Published by Messrs. William Wood & Co., New York, N. Y. 290 Pages. Price \$4.00.

The Organs of Internal Secretion. By Ivo Geikie Cobb. Published by Messrs. William Wood & Co., New York, N. Y.

A Form of Record for Hospital Social Work. By Gertrude S. Farmer. Published by J. B. Lippincott Company, Philadelphia, London and Montreal. 81 Pages. Price \$1.50.

The Glands Regulating Personality. By Louis Berman. Published by The Macmillan Company, New York, N. Y. 300 Pages.

Health Education and the Nutrition Class. By Hunt, Johnson & Lincoln. Published by E. P. Dutton & Co., New York, N. Y. 281 Pages. Price \$3.50.

Synopsis of Midwifery. Published by Messrs. William Wood & Co., New York, N. Y. 211 Pages. Price \$3.50.

HEARINGS BEFORE THE COMMITTEE ON PUBLIC HEALTH are assigned as follows:

February 6.—10.30 A.M., Senate Bill 130, House Bill 495. Petitions of the Medical Liberty League for legislation relating to vaccination and school attendance. Petitions of Dr. John W. Bartol that vaccination of certain children in private schools be required.

February 1, House Bill, 497. Petition of William Parker Cooke relative to safeguarding the health of children by regulating the sale of candy.

January 31.—10.30 A.M., House Bill 101. Bill relating to medical inspection in public schools.

The article on "The Value of Necropsies," which was prepared by an editorial writer and which appears in this issue, should be read by every practitioner. It may influence physicians to use any judicious means which may, through this method, aid in promoting the study of disease.

In order that the argument and facts may be available, the JOURNAL will have on hand reprints which will be distributed on request. In some instances this leaflet might be left with a family and the information conveyed could be followed by personal advice by the physician.